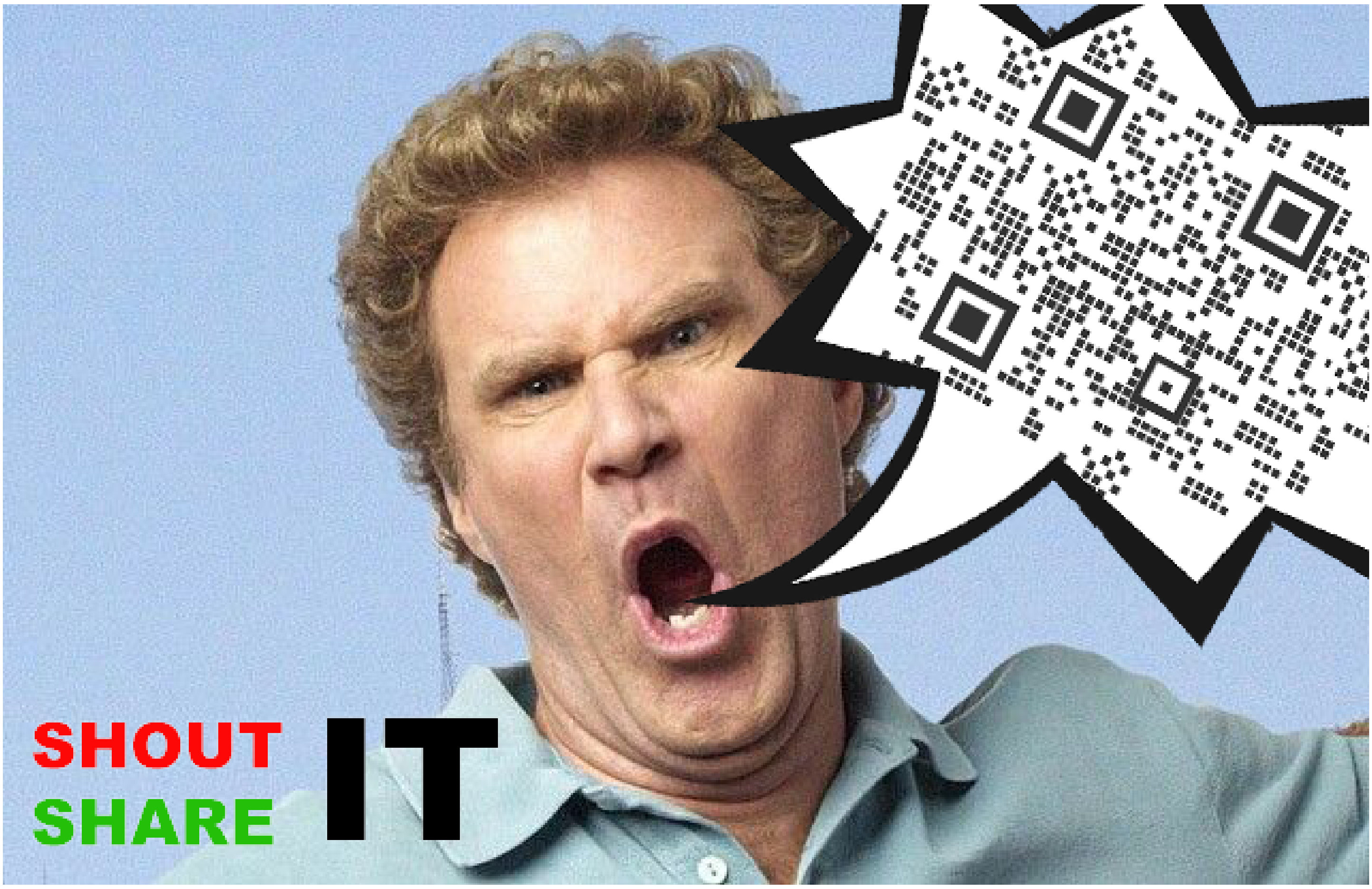
JOHN TORREY.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BULLETIN

OF THE

TORREY BOTANICAL CLUB.

VOLS. I—V.

JANUARY, 1870—DECEMBER, 1874.

NEW YORK.

MISSOURI
BOTANICAL
GARDEN.

BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. I.] New-York, January. 1870. [No. I.

1. **Prefatory.**—The object of this Bulletin is primarily to form a medium of communication for all those interested in the Flora of this vicinity, and thus to bring together and fan into a flame the sparks of Botanical enthusiasm, at present too much isolated. An attentive study of plants in their native haunts is essential to the advance of the science, and in this respect the local observer has an advantage over the explorer of extensive regions, or the possessor of a general herbarium. He can note the plant from its cradle to its grave; can watch its struggles for existence, its habits, its migrations, its variations; can study its atmospheric and entomological economics; can speculate on its relations to the past, or experiment on its utility to man. It would be in vain to attempt to enumerate all the points about which a lover of vegetable nature can learn and report something new. Botany, like every other science, far from being exhausted, is ever widening its field. We hope, therefore, to have no lack of interesting communications, not only from deep investigators, but from all who meet with interesting facts,—for we wish it to be distinctly understood, that we have chiefly in view the development of a greater Botanical interest in our neighborhood, and found our hopes of success as much upon learners as upon the learned.

While the Bulletin will be chiefly devoted to the local Flora of New-York, it will not exclude matters of general Botanical interest, of which we hope correspondents will keep it informed.

Such papers of value as are too long for the regular sheet, will be issued in a supplement of from two to four pages at a time.

The terms upon which the Bulletin can be issued will depend upon the number of its supporters. We suppose at present that we can furnish each of thirty subscribers at five dollars a year with ten copies, but must wait for a little experience. If we find it favorably received, we are not without hope of insuring it a permanency, which of course it ought to have. But of this we purpose to speak hereafter.

2. **New Catalogue.**—A revised catalogue of the plants, native and naturalized, within thirty-three miles of New-York, has been for some time in contemplation; but without the co-operation of those who herborize in all the different regions of our district, it must be necessarily incomplete. We wish those who know of observers, not yet in communication with the Club, would furnish us with their P. O. address. In order to make the Catalogue more serviceable and authentic, it is desirable to have specimens of plants from all our districts preserved in a herbarium by themselves for reference. This herbarium will at present be formed and kept at Dr. T. F. Allen's, No. 3 East 33d-street. Dr. Allen and Mr. P. V. Le Roy will act as curators, and take charge of exchanges or contributions in this connection. It is estimated that about half the number of plants in Gray's Manual are to be found within our precincts. Some, which are supposed to have disappeared, or have not been recently found, it is hoped may be re-discovered. *Lepedium Draba*, *Clitoria Mariana*, *Corema Conradii*, and *Azolla Caroliniana*, are among the number. The revised Catalogue should be accompanied with a map showing the formation of the districts and the plant distribution.

3. **The Œnothera of Montauk Point, Long Island.**—In July of this past summer I twice traveled the entire length of this remarkable point of land, exploring its Botany very carefully.

Vegetation is very stunted except in a few sheltered spots. For about ten miles an *Œnothera* is quite abundant, whose habit differs remarkably from any *Œnothera* we have in this section. It has very numerous and large flowers, with widely-spreading petals, making the plant very conspicuous.

It lies flat on the ground, its branches, which are covered with a profusion of showy flowers, spreading in every direction. The plant has a perennial root, and very short, woody trunk; it seldom attains an elevation of two or three inches; the whole plant is roughened with closely-appressed rigid hairs, which give the pods an almost hoary appearance. The leaves are long and narrow, long-tapering at the base, and appear petiolate, though really sessile, and are slightly and sparingly toothed. The pods have a long, tapering base, and an abrupt, club-shaped extremity, which is broadly four-winged at the sides, the wings either continuing to the very apex, or becoming smaller and almost obsolete at the apex. This mark I find depends upon the age of the pods; when young, the wings seem very broad to the apex; when older, and filled out internally, the wings seem narrower at the apex.

At East Hampton this form occurs in low, grassy places near the beach, sometimes strictly prostrate and hiddden in the grass; sometimes quite erect; and in the low pines and oaks, half a mile from the beach, it occurs with the typical *Œ. fruticosa*, and cannot be distinguished from it in any thing except its more spreading habit.

After comparison with an original specimen of *Œ. linearis*, var. β., in Dr. Torrey's Herbarium, the plant I gathered is found to be the same. (Indeed, there is no other *Œnothera* on Montauk Point that I could find.) It differs from the Southern *Œ. linearis* more than from our own *Œ. fruticosa*.

I am inclined to believe, from its habit and apparent gradation into *Œ. fruticosa*, that the plant should be referred to that species, and labelled *Œnothera fruticosa*, *L.* var. *humifusa*. T. F. A.

4. **Solanum Fendleri**, Gray.—At a late meeting of the Club, Mr. Bower exhibited some small tubers of this Solanum, raised in his garden. They were about the size of large peas. Mr. Bower sends us the following account of them:

"Dr. Torrey very kindly sent me six small tubers, I suppose from native plants, growing wild in New-Mexico.

"Dr. Torrey, in his note, says: 'It has been thought that as *S. tuberosum* bears only small tubers in its natural state, those by cultivation may give a like favorable result.'

"I planted them in different situations, and from one tuber I gathered twelve, but no larger in size. The plant has a habit of sending underground shoots some distance, then sending up stems above ground, which, I think, is not the case with *S. tuberosum*.

"In one instance the upright shoot came out of the top of a small mound composed of rotten wood, stones and soil, where I have *Polypodium incanum* growing, four feet from where the tuber was planted.

"As I know something of its habits, I shall pay more attention to it next year.

"William Bower, 53 Fulton-street."

5. **Epigæa Repens**, L.—This plant is found sparingly on Staten Island. The nearest point to the city, I believe, is Huguenot Station on the Staten Island Rail-Road. Is there any other station nearer or more accessible where it grows in sufficient abundance to justify a May-flower party? In relation to Epigæa, Mr. Thomas Hogg reports that he has seen it gathered in Japan, where also *Brunella vulgaris* is common. The latter is likewise a native of Europe.

W. H. L

6. **Aristolochia Serpentaria**, L.—Mr. Wm. Bower has in his garden, in Newark, a plant of this species, which, besides the regular flower, sends up a number of small buds with flowers that do not open, somewhat in the manner of *Specularia perfoliata*, probably for self-fertilization. The same kind of flowers may be observed in the case of many well-grown wild plants of this species. These flowers, however, form perfect seed pods. The subject requires further investigation. It would be interesting to examine whether *Asarum Canadense* has also two sorts of flowers. Mr. Bower was the first to call my attention to this peculiarity, and I cannot learn that it has ever been noticed before. Judging from the plants I have seen, it would appear that seeds in greater abundance, and perhaps more perfect, are produced by these hermaphrodite flowers. Mr. Bower will have an opportunity next summer to test this point. In the similar case of *Amphicarpæa monoica*, Nutt, I have found sometimes quite a number of pods with apparently well-formed seed. On the

other hand, *Apios tuberosa*, Mœnch, seems to compensate by its tubers for the very frequent abortion of its pods. These plants, with others, *Specularia*, for example, afford an interesting subject for investigation on this point. W. H. L.

7. **Lemna Valdiviana**, Philippi, (L. Torreyi, *Austin*) grows in ponds near Patchogue, Long Island. Its habit is very similar to *L. trisulca*, growing under water in masses. I have found only sterile plants. T. F. A.

8. **Nasturtium palustre**, L.—The typical form (smooth, with oblong pods) seems to be quite common about New-York, especially along the Harlem Rail-Road; it is more abundant than the hispid variety. T. F. A.

9. **Arabis lævigata**, *DC.*, grows in abundance on the low, rocky ground just southeast of Yonkers.

10. **Hesperis matronalis** seems thoroughly established, especially in the ditches along the rail-roads. T. F. A.

11. **Bromus sterilis**, L., is very abundant along the Hudson River R. R., from Manhattanville to Yonkers. It comes very early and lasts but a short time; only dead specimens can usually be obtained after June. T. F. A.

12. **The Varian "Sycamore,"** more properly Plane-tree, which stood on the west side of Broadway, between 26th and 27th streets, was cut down the first week in November. Its diameter was more than four feet near the ground. Just at the street level there was a hollow place on one side, but on the whole it seemed remarkably sound. Some one might give us a history of the stately old giant. Two young observers who counted the rings made out 95, but the roughness of the sections made accuracy difficult.

13. **Polymnia Uvedalia**, L.—Dr. T. F. Allen found a small patch of this plant near the Weehawken Ferry in 1864. It was still to be found there this summer, but in danger of destruction, with the cliffs that sheltered it. Dr. Gray, by some accident, refers this locality to *P. Canadensis.* There is no doubt about its being *P. Uvedalia.*

14. **Books.**—Dr. Torrey has received "Traité Général de Botanique," by MM. Le Maout and Decaisne, with upwards of 5,500 illustrations by Steinheil and Riocreux.—T. F. A. has Hegelmaier's "Lemnaceen," with 16 plates. He makes three genera, *Wolfia*, (including Griffith's Grantia,) *Lemna*, and *Spirodela.* L. Torreyi, *Austin*, was less perfectly described by Philippi, 1864, and named *Valdiviana*, from Valdivia, in Chili, where it was first found.—W. H. L. has C. K. Sprengel's "Entdeckte Geheimniss," 1793; often quoted by Darwin.

Subscriptions and communications received by W. H. Leggett, 224 E. 10th-street.

15. **Lepidium Virginicum**, L.—That this species should have its cotyledons accumbent, while others of the genus have them incumbent, seems somewhat anomalous. On picking the embryo carefully out of the seed coats, however, I find a conformation that in a measure removes the difficulty. In the species which I have examined, viz., the present, *L. ruderale*, *L. campestre*, and, perhaps, *L. intermedium*, the cotyledons are continued, in the form of petioles, about half way down the radicle; the cotyledons, in fact, being transversely folded upon themselves, as stated and illustrated in Gray's Genera in the case of *Subularia* and *Senebiera*, the genera immediately preceeding *Lepidium*. In the other species of *Lepidium* the plane of division between these petioles, or "radicular" portions of the cotyledons, is parallel to the cotyledons proper, and consequently to the seed partition. In *L. Virginicum* this split is likewise parallel to the partition, and thus the "radicular" portions of the cotyledons, is incumbent, and so far the species is in accordance with its congeners. Where the cotyledons expand into a blade, they are turned sharply at right angles to the partition and become accumbent. If the embryo be held with the edge of the cotyledons towards the eye, it is the left blade which comes from the back of the radicle, and thus has the longer turn to make. *Cakile Americana*, Nutt., resembles *Lepidium Virginicum* in these particulars, except that the "radicular" portion of the cotyledons is relatively much shorter, and in one instance I found the blades of the cotyledons almost spirally bent over the radicle, so as to pass, as it were, through an incumbent stage.

I have also observed this narrowing of the cotyledons into a petiolar portion, greater or less, in Nasturtium, Cardamine, Arabis, Barbarea, Erysimum, and Raphanus, so far as represented in our local Flora; but in all these genera, the "radicular" split has conformed nearly or quite to the cotyledons, as they are incumbent or accumbent: in Cardamine it is long and somewhat inclined to one side. I borrow the application of the term *radicular* from Gray's Genera, to which admirable work I am indebted for much instruction on the subject of Crucifers. The term, however, when applied to the cotyledons, is open to objections.

Perhaps my experience in picking out the embryos may be of use to beginners, I boil the seeds for a moment in a porcelain saucer over a spirit lamp to soften the coats, and then, with needles inserted in a holder, and a fixed lens, have generally no difficulty in getting at the embryos by picking the coats to make an opening, and then carefully pressing the embryos out. In the case of *Lepidium*, however, there is a difficulty. Immersion, particularly in hot water, causes the mucilage with which the seed coat is charged, to swell and envelop it in a beautiful crystal sphere, much larger than the seed itself. This slippery substance interferes sadly with the handling of the seed. It may be rubbed off, but I find it better to exclude the water by boiling the pods entire. The seed of *L. campestre* has a very thick coat, and can not readily be picked to pieces, but, on account of this very thickness, a good piece may be cut from the end, without injuring the embryo, which may then be squeezed out. Considering how many seeds a well grown *Lepidium* produces this mucilage might possibly be turned to account; certainly, it is a very pretty object to examine. W. H. L.

16. Aster Novae-Angliae, L.—In the last edition of Gray's Manual, mention is made of a white rayed "variety (?)" of this plant in one of the Western States.

On the outlet of Owasco Lake, near the Auburn city water works, I have observed, every autumn since 1862, a large number of plants with white rays, scattered over the fields through several acres. The same plants have white rayed heads from year to year: rays as unmistakably white as those of *Leucanthemum* or *Maruta*. Otherwise the plant has its ordinary appearance. I. H. Hall.

17. Lobelia syphilitica, L.—The variety with rose pink flowers, and also that with white flowers, grow between the Hudson R. R. R. track and the water near Kingsland's point, below Sing Sing.
I. H. H.

18. Solea concolor, Ging.—In July, 1864, east of Tarrytown, about 2½ miles from the Hudson, I found one plant of this species, with pods just emptied of their seeds. I did not then know the plant, though since familiar with it. The only other station, of which I have personal knowledge, is at Mormon Hill, in Palmyra, in the western part of the State. I. H. H.

19. Dentaria maxima, Nutt.—Grows in abundance in the woods near Bowery Bay, just beyond the bridge, over which the Astoria and Flushing turnpike passes. Among the thousands of specimens growing there, I failed to detect any which seemed to indicate a close approximation to *D. laciniata;* nor did I notice any difference between the two plants, not yet pointed out. I would suggest that they be cultivated with a view to testing the claims of *D. maxima* to specific distinction. M. Ruger.

20. Geranium pusillum, L.—On the upper side of the North Road, leading from Laurel Hill, L. I., and just beyond Betts Av., the sidewalk is elevated, and forms an embankment about three feet high. At the bottom of this embankment *G. pusillum* grows plentifully. It grows also by the barn on the road-side opposite the northern extremity of Cooper's glue factory, Williamsburg. M. R.

21. Cornus Canadensis, L.—A small patch of this pretty little plant grows in the piece of woods situated on the north side of Jackson Av., just two miles from Hunter's Point, by the mile-stone. It grows a little distance within the Astoria side of the woods, on the banks of a brooklet. This is, I believe, the only known station on Long Island.
M. R.

22. Books and Journals.—In Silliman's "American Journal" for January, Dr. Gray evidences his return by a series of interesting notices of recent botanical publications, among them, that of "Pursh's Journal," collected into a little volume of 87 pp. from Meehan's "Gardener's Monthly." . . . The English Journals, "The Academy," monthly, (25 cts.,) and "Nature," weekly, (12 cts.,) may now be obtained at Brentano's, 100 Broadway, and, we presume, other periodical depots, and almost always contain interesting botanical intelligence. The notices of the new "Flora of Middlesex," [London,] are appetizing.

23. **Epigaea repens,** L.—*Not* scarce at Huguenot station, and probably still nearer the city. G. I. C. On the banks of the Bronx, near Fordham. F. J. B.

24. **The mild winter.**—Dandelions in bloom in Westchester Co. near Peekskill, the first week in January. L. R. Hepaticas in bloom, and peas two inches high on Long Island, "Evening Post," Jan. 26. We hope correspondents will give us such particulars in regard to the unusual winter, as fall under their notice.

25. **Frangula Caroliniana,** Gray.—Formerly reported from Secaucus Swamp, N. J., has since been found by Messrs. Bower and Ruger, between Astoria and Flushing, L. I.

26. **Torreya Bogotensis.**—In the catalogue of J. Linden, Bruxelles, recently received, I find mention of a Torreya which I have not before seen noticed—*T. Bogotensis.* There is nothing to indicate where or by whom it was described and only the remark "A very fine Conifer from the cold regions of the province of Bogota, in Colombia, of a pyramidal form." The other species are *T. taxifolia*, Arn., Florida; *T Californica*, Torr., California; *T. nucifera*, Zucc., Japan; *T. grandis*, Fortune, Japan. The last named, together with *T. Bogotensis*, must be considered doubtful, until determined by competent authority. GEORGE THURBER.

27. **Terms of Subscription.**—On the receipt of one dollar, we will send one copy of the Bulletin for a year; seven copies for five dollars, and one extra copy for every additional fifty cents. Those interested had better subscribe for seven or more copies, and distribute them where they may be useful. We desire to reach and to hear from all the surrounding districts. When the receipts justify a reduction of the price, it will promptly be made. Communications should be addressed to WM. H. LEGGETT, 224 E. 10th St.

28. **Materials for the Revised Catalogue.** (See § 2, p. 2.)—We propose to occupy a portion of each Bulletin, in giving in a condensed form, such information, as we possess relating to our local flora, following the order in Gray's Manual. We hope all interested will aid us, both in correcting errors, and in supplying deficiencies in species, varieties, or localities. *Torr. Cat.* stands for Torrey's Catalogue, 1819.

RANUNCULACEÆ.

CLEMATIS, L.—**C. verticillaris,** D. C.; Haverstraw, *C. F. Austin;* Preakness Mt., N. J., *W. L. Fischer.*—**C. ochroleuca,** Ait.; South Brooklyn station destroyed; abundant about Toad Hill, Staten Island, *T. F. Allen*, 1864.—**C. Virginiana,** L.; very common.

ANEMONE, L.—**A. cylindrica,** Gray; said to be found at New Durham, but ?—**A. Virginiana**, L.; common.—**A. Pennsylvanica**, L.; *Torr. Cat.* station destroyed; Westchester Co., *T. F. Allen;* N. J. *P. V. Le Roy.*—**A. nemorosa**, L.; very common.

HEPATICA, Dill.—**H. triloba**, Chaix.; very common, occasionally 5-lobed.

THALICTRUM, Tourn.—**T. anemonoides**, Michx.; very common, rarely double.—**T. dioicum**, L.; common.—**T. purpurascens**, L., and Var. **ceriferum**, Austin; not uncommon.—**T. Cornuti**, L.; very common.

RANUNCULUS, L.—**R. aquatilis**, L., var. **trichophyllus**, Chaix.; Locust Av., L. I., *M. Ruger;* near Jamaica, *T. F. Allen.*—**R. multifidus**, Pursh; near Greenwood cemetery, the old station, but fated.—**R. alismaefolius**, Geyer; abundant in N. J.—**R. pusillus**, Poir.; *Torr. Cat.*, station at Bloomingdale not recently reported; New Dorp, *T. F. Allen*; Boonton, N. J., *C. F. Austin.*—**R. Cymbalaria**, Pursh; not reported this side of Suffolk Co., L. I.—**R. abortivus**, L.; very common; Var. **micranthus**; abundant along the Palisades with typical form.—**R. sceleratus**, L.—**R. recurvatus**, Poir.; both very common.—**R. Pennsylvanicus**, L.; N. J., not common.—**R. fascicularis**, Muhl; common.—**R. repens**, L.—**R. bulbosus**, L.—**R. acris**, L.; all very common.

CALTHA, L.—**C. palustris**, L.; common.

TROLLIUS, L.—**T. laxus**, Salisb.; Closter, N. J., *C. F. Austin;* in a creek near Central Av., 3 miles from Mt. Coombs, Westchester Co., *W. L. Fischer.* Near junction of Erie and N. R. R. of N. J., *Jas. Hyatt.*

COPTIS, Salisb.—**C. trifolia**, Salisb.; New Durham; Preakness, *Fischer.*

HELLEBORUS, L.—**H. viridis**, L.; Glen Cove, *I. Coles;* near Brooklyn and Jamaica, *Halsey & Browne* in State Flora, not recently reported.

AQUILEGIA, Tourn.—**A. Canadense**, L.; common.

DELPHINIUM, Tourn.—**D. Consolida**, L.; occasional along road sides.

HYDRASTIS, L.—**H. Canadensis**, L.; shady woods, *Torr. Cat.*, not recently found.

ACTÆA, L.—**A. spicata**, L., var. **rubra**, Michx.; Preakness Mt., *W. L. Fischer;* Inwood, *W. W. Denslow, P. V. Le Roy;* Glen Cove, *I. Coles.*—**A. alba**, Bigel. Not uncommon; with red pedicels, Glen Cove, *I. Coles.*

CIMICIFUGA, L.—**C. racemosa**, Ell.; not uncommon.

A plant of Zanthorhiza apiifolia, L'Her. in the Friends' burying ground at Flatbush was doubtlessly placed there.

MAGNOLIACEÆ.

MAGNOLIA, L.—**M. glauca**, L.; not uncommon in the swamps of N. J., Staten Island, and Long Island.

LIRIODENDRON, L.—**L. Tulipifera**, L.; common.

MENISPERMACEÆ.

MENISPERMUM, L.—**M. Canadense**, L.; common.

BERBERIDACEÆ.

BERBERIS, L.—**B. vulgaris,** L.; Hills, N. Y., *Torr. Cat.*, but not found of late; Glen Cove, *I. Coles;* Bergen Hills, and Red Bank, N. J.

CAULOPHYLLUM, Michx.—**C. thalictroides,** Michx.; Dyckman's woods, Inwood, *Le Roy;* Yonkers, *Dr. Allen;* Pascack, N. J., *C. F. Austin;* Preakness, N. J., *Fischer* and *Pollard.*

PODOPHYLLUM, L.—**P. peltatum,** L.; West Hoboken, *P. V. Le Roy;* Morris, Essex, and Monmouth Co's, N. J.

NYMPHÆACEÆ.

BRASENIA, Schreber.—**B. peltata,** Pursh.; common.

NYMPHÆA, Tourn.—**N. odorata,** Ait.; common.

NUPHAR, Smith.—**N. advena,** Ait.; common.—**N. luteum,** Var. **pumilum**; *Torr. Cat.;* Williamsbridge, Harlem R. R., *T. F. Allen.*

SARRACENIACEÆ.

SARRACENIA, Tourn.—**S. purpurea,** L.; New Jersey swamps; Staten Island, *Le Roy.*

PAPAVERACEÆ.

CHELIDONIUM, L.—**C. majus,** L.; common.

SANGUINARIA, Dill.—**S. Canadensis,** L.; rather common.

FUMARIACEÆ.

ADLUMIA, Raf.—**A. cirrhosa,** Raf.; shady rocky hills, *Torr. Cat.; C. F. Austin*, Palisades.

DICENTRA, Bork.—**D. Cucullaria,** DC.; rather common, except on Long and Staten Islands.

CORYDALIS, Vent.—**C. glauca,** Pursh; rather common.—**C. flavula,** Raf.; Shawangunk Mts., Ulster Co., and probably within our limits, *W. H. Leggett.*—**C. aurea,** Willd.; Inwood, *P. V. Le Roy;* Sufferns, *W. H. Leggett.*

FUMARIA, L.—**F. officinalis,** L.; *Torr. Cat.*, station destroyed, but probably found in waste places elsewhere.

CRUCIFERÆ.

NASTURTIUM, R. Br.—**N. officinale,** R. Br.; common.—**N. sylvestre,** R. Br.; Parsons' Nursery, Flushing; 152d St., next to Trinity Cemetery, *W. H. Leggett.*—**N. palustre,** DC.; common; typical form, vide p. 4, § 8; Var. **hispidum,** Hackensack meadows.—**N. Armoracia,** Fries; not uncommon.

DENTARIA, L.—**D. diphylla,** L.; near King's Bridge, *W. W. Denslow;* Westchester County, *W. L. Fischer;* Tappan, *C. F. Austin.*—**D. maxima,** Nutt.; Bowery Bay, L. I., *M. Ruger.*—**D. lacinata,** Muhl.; Inwood; Hoboken hills etc.; not scarce.

CARDAMINE, L.—**C. rhomboidea,** DC.; common.—**C. pratensis,** L.; swamps, Weehawken, and New Durham, etc., not common.—**C. hirsuta,** L.; common; Var. **sylvatica,** High Bridge, *W. W. Denslow;* Palisades, Hoboken, etc.

ARABIS, L.—**A. lyrata,** L.; common.—**A. hirsuta,** Scop.; Inwood, *Le Roy;* other authorities are given, but without localities, apparently not uncommon.—**A. laevigata**, DC.; Northern end of N. Y. Island, *W. W. Denslow;* Yonkers, *T. F. Allen.*—**A. Canadensis**, L.; common.—**A. perfoliata**, Lam.; 86th St., East River, sparingly, but abundant along Harlem River, near 6th Avenue, *W. H. Leggett.*

BARBAREA, R. Br.—**B. vulgaris**, R. Br.; very common, but not in *Torr. Cat.*—**B. praecox**, R. Br.; waste ground about Parsons' Nursery, Flushing.

ERYSIMUM, L.—**E. cheiranthoides**, L. Waste grounds, upper part of N. Y. Island, *W. H. L.;* also N. J., *Austin.*

HESPERIS, L.—**H. matronalis**, L.; Weehawken hill sides, *W. H. L.;* and vid. § 10.

SISYMBRIUM, L.—**S. officinale**, Scop.; very common.—**S. Thaliana**, Gaud.; not rare.

BRASSICA, Tourn.—**B. Sinapistrum**, Boissier; common.—**B. alba**, L.; common.—**B. nigra**, L.; common.

DRABA, L.—**D. Caroliniana**, Walt.; (Sandy fields, Canal St. *Torr. Cat.!*) sandy fields, Inwood, *W. W. Denslow.*—**D. verna**, L.; common.

CAMELINA, Crantz.—**C. sativa**, Crantz; fields and waste grounds, Hoboken, Long Island, Inwood etc.

CAPSELLA, Vent.—**C. Bursa-pastoris**, Mœnch; very common.

LEPIDIUM, L.—**L. Virginicum**, L.; very common.—**L. ruderale**, L.; common; not in *Torr. Cat.;* possibly of rather recent introduction. [I first gathered it at Flatbush, about four years ago; but, as it is common now in all directions near the city, it may have escaped notice from its resemblance to the preceding. W. H. L.]—**L. campestre**, L.; common.—**L. Draba**, L.; Astoria station destroyed; not found elsewhere.

CAKILE, Tourn.—**C. Americana**, Nutt.; abundant on sea shore; *Mr. Calverly* reports having found on Coney Island a stray specimen of **C. maritima**, Scop.

RAPHANUS, L.—**Raphanistrum**, L.; not in *Torr. Cat.*, but abundant enough now, at least on Long Island.

CAPPARIDACEÆ.

POLANISIA, Raf.—**P. graveolens**, Raf. Gravesend, L. I., in sand near salt water, *W. H. L.;* Bergen, N. J., *Le Roy.*

VIOLACEÆ.

SOLEA, Ging., D. C.—**S. concolor**, Ging., Tarrytown, *Hall,* (See § 18. p. 6.)

VIOLA, L.—**V. rotundifolia**, Michx.; Morristown, N. J., *W. H. L.;* New Jersey, *Austin;* a specimen gathered in Morrisania, near the Harlem River, *W. H. L.;* not in *Torr. Cat.*—**V. lanceolata**, L.; common.—**V. primulæfolia**, L.; not uncommon, particularly on Staten Island.—**V. blanda**, Willd.; common.—**V. cucullata**, Ait.; very common; Var. **palmata**; common; Var. **cordata**; Preakness Mt., *W. L. Fischer;* petals variegated with white, woods half a mile beyond Greenwood Cemetery, on the Coney Is. R. R., *W. H. L.* **V. sagittata**, Ait.; common.—**V. pedata**, L.; common.; Var.

bicolor; Inwood, *W. W. Denslow.*—**V. canina**, L., var. **sylvestris**, Regel.; common.—**V. Canadensis**, L.; *Torr. Cat.; Le Roy;* but certainly not common near the city, and, in State Flora, said not to grow below the Highlands.—**V. pubescens**, Ait.; common; Var. **eriocarpa**, Nutt.; not uncommon; Var. **scabriuscula**, Torr. and Gray; New Jersey, *Austin.*—**V. tricolor**, L.; Long Island, State Flora; Hoboken, Bergen, Weehawken, *Torr. Cat., Le Roy, Allen;* Haverstraw, *Austin;* probably all, the var. **arvensis**.

29. **Notes on the list of plants.**—We gladly report several communications, suggesting corrections or additions to our catalogue. We hope correspondents will remember to send specimens to Dr. Allen, 33 East 33d St., for the Local Herbarium, so that, when the completed catalogue is published, it may have an authentic basis for reference, and verification.

Ranunculus multifidus, Pursh, grows near Flatbush Jail, on the Oaklands side. Last season I found it at Ridgewood, in a small pool, which is now perhaps filled up. M. RUGER.

Trollius laxus, Salisb. The station in Westchester County is erroneously given 3 miles from Mt. Coombs; read McCoombs Bridge.

Magnolia glauca, L. I am a native of North Hempstead, Queens Co., and have botanized in most of the localities between Jamaica and Greenport, but have not seen a plant of Magnolia. It may grow there, but I should like to know who has seen it. O. R. WILLIS.

We took the locality from Torr. Cat. and the State Flora; but we have not met with the plant on Long Is. ourselves, nor do we find on enquiry, any recent collector who has. It may, however, grow on this end of the island, which, from the discoveries of Mr. Ruger and others, would seem not to have been fully explored. That it is not very uncommon on the south side of Staten Island, or in the Jersey swamps, we can personally vouch. EDS.

30. **Communication from I. H. Hall.**—If you consider, (as I do,) *Hepatica acutiloba*, DC., a species distinct from *H. triloba*, Chaix., I have to report

Hepatica acutiloba, DC., West Mount Vernon, banks of the Bronx, in company with *Dentaria diphylla*, L., *D. laciniata*, Muhl, and a few other things not as common here as further northward.

In Central and Western New York *H. acutiloba* is the prevailing form; so prevailing, indeed, that I know of but one locality there of *H. triloba*, and that is in Fleming, Cayuga County. The *H. triloba* is more apt to run to bright colors, rose, purple, deep purplish blue, and more often develops scent; while the *H. acutiloba* is most commonly white, or with blush of rose or faint tinge of blue. Transplanted into gardens, the *H. triloba* develops the stronger scent, and keeps its colors brighter. In both forms, both wild and transplanted, I have observed quite a considerable degree of permanence in color from year to year in the same plants. It may be interesting to observe that hardly any of our common wild flowers take more kindly to cultivation than the two Hepaticas, provided they are not put in a place too hot or sunny. They multiply, the flowers increase in size, and grow double, and develop an odor almost like a bed of sweet violets—which is peculiarly grateful when, as they often do, they come up and blossom through the snow, while the clustering bees make them gently hum, like Virgil's hedge of willows—and the leaves make a most beautiful shining border all summer.

In the woods the Hepaticas are constantly visited by the bees from the hives at home; indeed, they are the first things to start out the bees. I know of one hive in particular, from which the bees regularly go every spring a mile and a half to a patch of woods, to gather honey from the early Hepaticas.

Ranunculus pusillus, Poir, not only grows at New Dorp, but in most of the wet places south of the Staten Island R. R. for some miles each side of New Dorp.

Ranunculus alismæfolius, Geyer, I have found abundantly in Connecticut; Greenwich, Stamford, Norwalk, New Canaan; and I think it must occur in Westchester County.

Ranunculus flammula, L., var. **reptans**, Gray, so common from Niagara in all the waters that empty into the St. Lawrence, I found last July, (1869,) cast on the shore on the south end of Pelopel's Island in the Hudson, opposite Cornwall. It had a fresh flower, but I saw none growing, and do not know whence it came.

Coptis trifolia, Salisb. Grows on Staten Island, south of the R. R., in wet places, between Vanderbilt's Landing and Garrison's, in company with *Trientalis Americana*, Pursh; *Smilacina bifolia*, Ker, etc. I have also seen it near White Plains, and in Connecticut; and frequently along the Hudson River.

Cornus Canadensis, L. I know some patches in the woods near Patchogue, Long Island. Near the same place, in a brackish marsh, is *Utricularia cornuta*, Michx., which I have not seen elsewhere hereabouts, except in the Jersey Pines. I. H. H.

31. **Vinca minor**, L., is pretty thoroughly naturalized on Betts Av. at Laurenceville. It grows for the space of sixty or seventy feet on the road-side. It grows also on Train's Meadow Road, near Jackson Av., where I have seen it, and *Sedum ternatum*, growing for several seasons. M. Ruger.

32. **Æthusa Cynapium**, L. May be found on the bank of the East River, just outside of the northern part of Jones' Woods. It may be found also in the court-yard on the N. E. corner of Lafayette Place and E. 4th St., where it flowered till quite late last fall. A specimen from this place is in the herbarium of the Club. M. R.

33. **Darlingtonia**.—The "American Agriculturist" for March contains a historical notice of *Darlingtonia Californica*, Torr., by Prof. Thurber, with a fine engraving of the plant.

34. **Special Notice**.—We repeat our call upon the friends of the cause to help make us known in all the surrounding districts, wherever a lover of plants is found. Our aim is no temporary gratification, but to do something towards making Botany a permanent institution of New York. W. H. Leggett, 224 E. 10th St.

35. **Hints to Correspondents.**—The season for herborizing has now fairly commenced, when the lover of plants will seize every opportunity to revisit his favorites, and study their habits. This seems a fitting occasion to remind him, that classification, though highly important, is only one branch of Natural History, and that far more may be learned of every species than the meager description proper to the Manual. The ideal local Flora should contain a full account of all the traits and habits of the vegetable world within its limits. There are many facts not to be gathered or but very imperfectly from the fullest herbaria,--facts which no doubt have, many of them, been noticed and stored up, in a scattered way, in the minds of individual observers, but which, being unrecorded, are lost, to the great detriment of science. We look forward to the time when New York shall possess a tolerably complete local Flora, and, with this view, wish to suggest some points, which it is desirable to have reported. First, there is the period of the successive changes in the plant from the opening of the buds and flowers to the fall of the seed and leaves, or decay of the whole plant; and, what is of more consequence than the month or the day, the relative time in comparison with others, particularly of the same genus or orders, and the variations in this respect, in different seasons or localities. We want much fuller information than we have yet about the earlier leaves of plants, and the tendencies of some to drop, and of others to keep their leaves. Secondly, it is necessary to note the geological character of the soil and situation, and whether it be moist or dry, and its exposure. Likewise, what plants are associated together, or seek the shelter, or society of others. Next, the conformation of the flower in reference to its fertilization, and whether the male or female organs are the first to mature; what insects visit or feed on the plants, — and in this let us hope that the votaries of the sister science of Entomology will aid us. Then there are the interesting subjects of the economy of the roots and rootstocks, of the buds, and of the seeds. All monstrosities are worthy of careful consideration, not only as throwing light on general morphology, but on the history of the plant itself. For every species has had a long history, and it is only by the most minute study, with all the concentrated lights of science, that we can hope to get some insight into it. This to many is the chief attraction of the subject, and we must ever, with Colden, the earliest botanist of the State, make it the object and guide of our studies, "rerum cognoscere causas." It should be remembered that farmers and men whose lives are passed in handling plants, have often made interesting observations, and their sympathy may be enlisted to preserve some rare situation.

We see that very much remains to be accomplished, and that those who are disposed to assist, can never want for subject matter. Every one with eyes for vegetable life might become a contributor, and would be gladly welcomed.

36. **Zanthorhiza, Zanthoxylum.**—These barbarous names are credited, the former to Humphrey Marshall of Pennsylvania, the latter to Governor Colden of New York. It would be hard to say whether they have not received more obloquy than honor from being remem-

bered in this connection; we have, therefore, a patriotic as well as a literary interest in having the proper correction made. The English Z is never an equivalent for the Greek X, and the inconsistency of putting a Z in the beginning and an X in the latter part of Zanthoxylum to represent the same Greek letter makes the confusion worse. All other botanical names beginning with X in Greek, are spelled with X, quite a number commencing with this very syllable *Xantho.*

We are aware that there is a canon against changing the initial letter of an established scientific name, but we consider this case a fair exception. Dr. Gray says, in a note we feel at liberty to quote, "As to *Zanthoxylum*, Colden wrote it so, Linnæus adopted it, and most have just followed. But there is no good reason for such orthography and it should have been corrected. *Zanthorhiza* is worse, because, I see, Marshall made it *Xanthorhiza*, so you have double reason. I have made them uniform but wholly unclassical. Bentham and Hooker have followed the original spelling in each case, and spelled one with a Z, the other with an X."—Lindley and the English Botanists generally seem to prefer the X, but on the continent Z prevails. We have always supposed, that Colden wrote "Zanthoxylum," but find in his manuscript, in the possession of Dr. Torrey, that he first describes the plant as a new genus, without giving it a name, and has afterwards inserted, "Zanthoxylum, Catesby."

The spelling of Zanthorhiza reminds us of another point in which inaccuracy is frequent. The word is composed of two elements, *Xantho*, and *rhiza;* now it is an invariable rule in Greek compounds that when the first part ends in a vowel, and the second commences with an *r*, the r must be doubled; and yet we find in authors such inconsistencies as *Corallorhiza, polyrrhiza.*

We submit, therefore, that the correct spelling of the names in question is, **Xanthorrhiza, Xanthoxylum.**

37. **Polanisia graveolens**, Raf.—I have found in considerable quantity in rough clefts of the bank above the beach at Long Branch, N. J.

I. H. Hall.

38. **Argemone Mexicana**, L.—Yorkville on First Avenue.—**Reseda odorata**, L. 23d St. and 4th Av.

M. Ruger.

39. **Correction.**—Local Herbarium at Dr. *T. F. Allen's*, 3 E. 33d St., instead of 33 E. 33d St.

40. **Flowering of the Darlingtonia.**—Dr. Torrey kindly gave me, early last winter, one of the several specimens of *Darlingtonia*, which he received from a correspondent in California. An empty Aquarium tank was converted into a small conservatory for it, and it was planted in a mixture of swamp mud and sphagnum, the top of the tank being covered with a glass plate. The plant was kept in a cold room, where the moss was slightly frozen several times during the winter. The plant flowered early in April, and the specimen was placed in the hands of Dr. Torrey, to allow him to confirm his original observations, made upon dry materials, and he will probably add what may be necessary to complete the history of this interesting plant

G. T.

CISTACEÆ.

HELIANTHEMUM, Tourn.—**H. Canadense**, Michx.; common.

HUDSONIA, L.—**H. ericoides**, L.; Tottenville, Staten Island, *Le Roy.*—**H. tomentosa**, Nutt.; abundant along the sea shore, May, June.

LECHEA, L.—**L. major**, Michx.; common.—**L. thymifolia**, Pursh; not uncommon, particularly on the south side of L. I.—**L. Novæ-Cæsareæ**, Austin; not uncommon; abundant at Tottenville, Staten Island, *W. H. L.*—**L. minor**, Lam.; common with numerous variations.

DROSERACEÆ.

DROSERA, L.—**D. rotundifolia**, L.; common.—**D. longifolia**, L.; New Jersey, *Austin*: common in swamps on Long Island, *Coles*, *Allen.*

HYPERICACEÆ.

ASCYRUM, L.—**A. stans**, Michx.; Long Island, *Le Roy.*—**A. Crux-Andreæ**, L.; South side of Staten Island; South Amboy; Bergen Point, N. J., many years ago I used to find it in the neighborhood of 56th St. and the Hudson River, *W. H. L.*

HYPERICUM, L.—**H. prolificum**, L.; Var. **densiflorum**: South Amboy, *T. F. A.*—**H. adpressum**, Barton; New Jersey, *Austin.*—**H. angulosum**, Michx.; Cedar swamps at Weehawken, *Torr. Cat.*, but not seen of late.—**H. perforatum**, L.; very common.—**H. corymbosum**, Muhl; common.—**H. mutilum**, L.; very common.—**H. Canadense**, L.; very common; Var. **major**; Rockaway, L. I., *W. H. L.*—**H. Sarothra**, Michx.; very common.

ELODES, Adans.—**E. Virginica**, Nutt.; common.

ELATINACEÆ.

ELATINE, L.—**E. Americana**, Arnott; Banks of the Passaic; Ponds, L. I., *T. F. A.;* Westchester Co.; *Mead*, in State Flora; (Hudson R. at Peekskill, *W. H. L.*).

CARYOPHYLLACEÆ.

DIANTHUS, L.—**D. Armeria**, L.; common.

SAPONARIA, L.—**S. officinalis**, L.; common.

VACCARIA, Medik.—**V. vulgaris**, Host.; Newtown Station of the Flushing R. R., *Ruger.*

SILENE, L.—**S. stellata**, Ait.; common.—**S. inflata**, Smith; hill-sides on Staten Island, near the Narrows, *T. F. A.* Spuyten Duyvel, Westchester Co., *W. H. L.;* New York City, *Austin.*—**S. Pennsylvanica**, Michx.; common; still flourishes in its native habitat in Central Park.—**S. Virginica**, L.; reported, but no station named. —**S. Armeria**, L.; New Jersey, *Austin;* occasional by road sides, *W. H. L.*—**S. antirrhina**, L.; common.—**S. noctiflora**; cultivated grounds and road sides, Flushing etc., *W. H. L.:* Inwood, *W. W. Denslow.*

LYCHNIS, Tourn.—**L. vespertina**, Sibth.; in similar situations with *Silene noctiflora.*—**L. Githago**, Lam.; grain fields, common.

ARENARIA, L.—**A. serpyllifolia**, L.; very common.—**A. squarrosa**, Michx.; sandy soil, N. J., *T. F. A.*—**A. lateriflora**, L.; not uncommon.—**A. peploides**, L.; sea shore, Staten Island, Long Island.

STELLARIA, L.—**S. media**, Smith; very common.—**S. longifolia**, Muhl.; New Jersey, *Austin, W. H. L.;* bogs and overflowed woods, *Torr. Cat.;* north of Astoria, *Ruger.*

CERASTIUM, L.—**C. vulgatum**, L.; shady rocks along N. R. R. of N. J. above junction with Erie R. R., *T. F. Allen;* New Jersey, very rare, *Austin.*—**C. viscosum**, L.; very common.—**C. nutans**, Raf.; woods, N. J., *Torr. Cat., Austin.*—**C. oblongifolium**, Torr.; abundant on the hills of Staten Island, not in *Torr. Cat.;* Palisades, N. J.; *Austin, Le Roy.*—**C. arvense**, L.; Fort Lee, *T. F. Allen.*

SAGINA, L.—**S. procumbens**, L.; *Austin;* near Hempstead, *W. H. L.:* "Borders of creeks and springs, and in rather moist sandy soils; on Long Island abundant, also near the city of New York." *State Flora.*—**S. apetala**, L.; *Austin;* dry hill sides, near Manhattanville, *State Flora.*

SPERGULARIA, Pers.—**S. rubra**, Presl., var. **campestris**; abundant along the New Jersey shores.—**S. salina**, Presl.; Coney Island, *F. J. Bumstead;* Maspeth and Canarsie, *M. Ruger.*—**S. media**, Presl.: common on New York and Long Islands, *W. H. L.;* Var. **macrocarpa**, I have a well marked specimen of this plant, handed me some years since, while yet fresh, by Prof. *Jas. Hyatt,* who gathered it, as I understood, at Hoboken. *W. H. L.*

SPERGULA, L.—**S. arvensis**, L.; rather common in cultivated grounds; rare in New Jersey, *Austin.*

ANYCHIA, Michx.—**A. dichotoma**, Michx.; common.

SCLERANTHUS, L.—**S. annuus**, L.; very common.

MOLLUGO, L.—**M. verticillata**, L.; very common.

PORTULACACEÆ.

PORTULACA, Tourn.—**P. oleracea**, L.; common.

CLAYTONIA, L.—**C. Virginica**, L.; common.

MALVACEÆ.

ALTHÆA, L.—**A. officinalis**; not infrequent along the north shore of Long Island; Newtown, *T. F. A.;* Flushing, *State Flora;* Glen Cove, *Coles;* etc.

MALVA, L.—**M. rotundifolia**, L.; common.—**M. sylvestris**, L.; Westchester Co., Dr. *Mead,* in *State Flora.*—**M. moschata**, L.; a frequent escape.

SIDA, L.—**S. spinosa**, L.; "Sandy hills, N. J." *Eddy in Torr. Cat.* *Le Roy.*

ABUTILON, Tourn.—**A. Avicennæ**, Gærtn.; not uncommon.

KOSTELETZKYA, Presl.—**K. Virginica**, Presl.; "Salt marshes near Oyster Bay." *Mitchill in Torr. Cat.* Hackensack meadows, near "Pen Horn City" on Erie R. R., *T. F. Allen.*

HIBISCUS, L.—**H. Moscheutos**, L.; common.

TILIACEÆ.

TILIA, L.—**T. Americana**, L.; common; var. **pubescens**, Weehawken, high hills, *Torr. Cat.*—**T. Europæa**, common in cultivation.

LINACEÆ.

Linum, L.—**L. Virginianum**, L.;—common.—**L. striatum**, Walt.; New Jersey, *Austin;* Staten Island, *W. H. L.*, probably common, but usually confounded with the preceding.—**L. sulcatum**, Riddell; New Jersey, *Austin.*—**L. usitatissimum**, L.; is found along the railroads &c., but hardly established.

GERANIACEÆ.

GERANIUM, L.—**G. maculatum**, L.; very common.—**G. Carolinianum**, L.; along the aqueduct at High Bridge; New Jersey, *Austin, W. H. L.*, not in *Torr. Cat.*—**G. columbinum**. L.; Chatham, N. J., a small patch *W. H. L.*; Long Island, *Torr. Cat.*, but not in *State Flora*, and as the next is found there, perhaps mistaken for—*G. pusillum*, L.; roadsides at Cooper's Glue Factory, Williamsburgh, and also at Lawrenceville, Newtown, *M. Ruger;* vid. § 20. Sandy soils a few miles from Brooklyn, *State Flora*; Glen Cove, *Coles.*—**G. Robertianum**, L., common on shaded and rocky hill sides, not reported from Long Island.

ERODIUM, L'Her.—**E. cicutarium**, L'Her.; Tottenville, Staten Island, *Le Roy.*

FLŒRKEA, Willd.—**F. proserpinacoides**, Willd.; Pascack, N. J., *Austin.*

IMPATIENS, L.—**I. pallida**, Nutt.; Snake Hill, N. J., *T. F. Allen*; Weehawken, *W. H. L.;* New Jersey, *Austin.*—**I. fulva**, Nutt.; very common.

OXALIS, L.—**O. Acetosella**, L.; on New York Island, *Le Conte*, in *Torr. Cat.*, but *State Flora*, makes no mention of it south of the Catskills.—**O. violacea**, L.; common.—**O. stricta**, L.; very common.

RUTACEÆ.

XANTHOXYLUM, Colden ?—**X. Americanum**, Mill, New Jersey, *Austin;* Glen Cove, *I. Coles.*

RUTA, L.—**R. graveolens**, L; Glen Cove, *I. Coles*; but whether fully naturalized, is not stated.

SIMARUBACEÆ.

AILANTHUS, Desf.—**A. glandulosus**, Desf.; springs up wherever there are trees, from both seed and suckers.

ANACARDIACEÆ.

RHUS, L.—**R. typhina**, L.; not common.—**R. glabra**, L.; very common.—**R. venenata**, DC.; swamps, common.—**R. Toxicodendron**, L.; too common. There is an upright form found in swamps, which, if I mistake not, shows no tendency to climb. *W. H. L.*

VITIS, Tourn.—**V. Labrusca**, L.; common.—**V. æstivalis**, Michx.—**VITACEÆ**, common.—**V. cordifolia**, Michx.; not uncommon, but we have no report whether this is the true *cordifolia*, according to Engelman, or *riparia*, or both. *Torr. Cat.* has both, and this is probably correct. So far as the leaves and panicle afford a criterion, I have a specimen of *V. riparia*, Michx.; Summit, N. J., *W. H. L.*

AMPELOPSIS, Michx.—**A. quinquefolia**, Michx.; common.

RHAMNACEÆ.

RHAMNUS, Tourn.—**R. catharticus**, L.; old hedges, N. Y. Island, *W. H. L.*—**R. alnifolius**, L'Her.; Woody hills, N. J., *Torr. Cat.*; Ditches by side of rail road, New Durham swamp. *W. H. L.; T. F. A.*

FRANGULA, Tourn.—**F. Caroliniana**, *Gray;* Secaucus swamp; between Astoria and Flushing, vid. § 25.

CEANOTHUS, L.—**C. Americanus**, L.; common.

CELASTRACEÆ.

CELASTRUS, L.; **C. scandens**, L.; common.

EUONYMUS, Tourn.—**E. atropurpureus**, Jacq.; near Paterson, N. J., on road to Hamburg. *Fischer.*—**E. Americanus**, L.; Hill side on N. Y. Island, above High Bridge, *T. F. A.*—Var. **obovatus**, Torr. and Gray; rather common, but the leaves hardly obovate.

SAPINDACEÆ.

STAPHYLEA, L.—**S. trifolia**, L.; Palisades.

ÆSCULUS, L.—**Æ. Hippocastanum**, L.; common in cultivation.

ACER, Tourn.—**A. Pennsylvanicum**, L.; on the sides of high hills, N. J., *Torr. Cat.*; [Haverstraw, *Austin.*]—**A. saccharinum**, Wang.; rather common.—**A. dasycarpum**, Ehrart.; New Jersey, *Austin;* common in cultivation.—**A. rubrum**, L.; very common in wet grounds.—**A. platanoides**, and **A. Pseudo-Platanus** are common in cultivation, and spring up from seed in our parks, but have no chance to grow.

NEGUNDO, Mœnch.—**N. aceroides**, Mœnch; near Paterson, and Red Bank, N. J. *W. H. L.*

POLYGALACEÆ.

POLYGALA, Tourn.—**P. lutea**, L.; Raynor, Queens Co., L. I., *State Flora;* New Jersey, *Torr. Cat.*—**P. incarnata**, L.; *Torr. Cat.*, and others, but it is not in *State Flora*, and in the absence of a named locality, we suspect some mistake.—**P. sanguinea**, L.; common.—**P. Nuttallii**, Torr. and Gray; Staten Island, *T. F. A.* and others; Long Branch, *T. F. A.*—**P. cruciata**, L.; swamps, South Amboy, &c., *T. F. A.*—**P. brevifolia**, Nutt.; Secaucus swamp, *T. F. A.*—**P. verticillata**, L.; very common.—**P. ambigua**, Nutt.; New Jersey, *Austin.*—**P. Senega**, L.; in open woods, and on hills, N. J., *Torr. Cat.;* Orange Co., *Austin.*—**P. polygama**, Walt.; abundant on Long Island.—**P. paucifolia**, Willd.; New Durham swamp, *Torr. Cat.*, but not seen of late. Orange Co., and Morris Co., N. J., *Austin;* Long Island, *Le Roy.*

41. **SYNCHRONISM.**—The relative time of flowering of different species is a subject that naturally suggests itself to every collector, and, by a careful collation of observations, is capable of being well systematized. Every botanical excursion ought to furnish some materials for this purpose, and we call for contributions. Mr. Bower, informs us that of two species of native *Dentaria* cultivated in his garden, *D. laciniata*, was two weeks in advance of *D. maxima*, showing in this a marked distinction between the two species.

On the 14th of May, when every apple tree was in bloom, we made a short trip to Bergen Neck, and noted two or three points in this connection. In a partially drained swamp we found *Azalea nudiflora* and *Viola primulæfolia* in perfection of blossom. Some of the heads of this Azalea resembled, in their crowded umbel, Rhododendron. The Azalea head has about fifteen long peduncled flowers, but in these cases, owing to the shortening of the internodes, several heads were brought near together, giving a close cluster, effective as a mass, but lacking the grace of the separate ones. *Vaccinium corymbosum* was in flower close by.

How long this violet had been flowering we cannot say, and saw no other white violets to compare with it. *V. cucullata* had begun to appear in this neighborhood more than a month before, but was now abundant and tall scaped. *V. pubescens* seemed to be past its prime, although it had not showed itself nearly so early. We believe that most of our violets have a season of some weeks at least before they cease to display their petals, after which, as is well known, the stemless ones, at least, produce apetalous flowers throughout the summer—Is this change owing to variation in temperature, moisture, or light, or is it connected with the departure of some insect visitors? Will some one who has the opportunity to watch violets report to us the insects they find attracted by them?

Of Ranunculaceæ, *Anemone nemorosa* had quite disappeared in woods which two weeks earlier abounded in them, and *Thalictrum anemonoides*, which was scarce at best, had but a few stragglers left. Columbine was swinging its red bells over the rocks, apparently good for a week more at least. *Actæa alba* was in fresh flower, but *Cimicifuga racemosa* only in bud. *Ranunculus abortivus* was matured, having been out several weeks, but *R. recurvatus* was either scarce or just beginning to show its blossoms.

Of other orders, *Barbarea vulgaris* had newly minted its gold. Claytonia had been in bloom for more than a month, and was full of pods, with a few deep colored blossoms at the top—the sepals of these partaking of the deep color and pink veins with the petals. *Geranium maculatum* was not yet in its prime, and *Pyrus arbutifolia* hardly. The buds of *Viburnum acerifolium* were yet very immature, but the Dog-wood silvered the fresh green of the woods, while the male catkins of the Beech were withered.

Of Endogens, *Arisæma triphyllum*, *Trillium cernuum*, and *Smilacina bifolia* were in good flower, but *S. racemosa* and *Medeola Virginica* had some time to wait, and *Polygonatum biflorum* was only partially expanded. *Uvularia perfoliata* hung out bright bells, and *Hypoxys* was sparsely showing its yellow stars.

Antennaria plantaginifolia had finely developed male flowers; we did not notice the pistillate, but have the impression that they were in condition some weeks earlier: we should like to be enlightened on this point. So early as April the 9th, we found the Aspen in this neighborhood with the pistillate catkins on several trees more advanced than the staminate on one close by.

42. **Viola pedata,** L.; var. **alba.** A white flowered variety of the Bird-foot violet was found near Flushing L. I., by C. L. Allen, of Brooklyn. It is not mentioned in Gray's Manual; "Sometimes pale or even white," T. & G. Flora; "rarely almost white," State Flora. In the specimens referred to the petals are quite white. G. T.

43. **Senebiera didyma,** Pers.—Appeared spontaneously along with *Galinsoga parviflora*, Cav., in the yard at 96 4th Ave., three years ago.
T. E. A.

44. **The American Journal of Science and Arts** for May, contains a generous notice of our Bulletin, and a number of Botanical items of unusual interest. Mr. Bower's name has been misspelled Brown.

/ 45. **Notes and Queries.**—What is the explanation of the sudden discharge of pollen from Broussonelia? Do the Locust and Catalpa propagate themselves by seed in our region?

46. **Anemone fungus.**—Several weeks since, in a wood on Bergen Neck, we noticed that nearly all the sterile fronds of Anemone nemorosa had a peculiar fern like appearance, and, on investigation, found on the under side a series of angular black spots, which made the likeness still stronger. It was evidently a fungized growth, and was referred by the Lyceum of Natural History to Prof. A. M. Edwards, who reports.

I found it to be *Puccinia Anemones*, a parasite very common both here and in Europe. It is peculiar to this plant and position, so much so that with its black coloured spots upon the deeply cleft leaves, it is not to be wondered at that at one time this was taken for a feru; and even now it is sometimes known as the Conjuror or Chalgrave's fern, as Ray in his "Synopsis" (3rd edition, 1724) describes it, in company with the Maidenhair and Wallrun fern. This whole group of microscopic Fungi, infesting both plants and animals, is of extreme interest; the Brand of the Wheat, the Oidium of the Grape, as well as many diseases which "flesh is heir to," being at least, accompanied, if not caused, by these quick growing atomies. Those who desire to learn more concerning them will find profit and amusement in perusing Mr. M. C. Cooke's little "Rust, Smut Mildew, and Mould"—, Hardwicke. If Botanists will send me Fungus infested plants I shall feel obliged. A M. E.
314 West 34th Street.

[illegible]
Rinsta bot., 1880, p. 27.

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Vol. 1. No 6.] BULLETIN OF THE TORREY BOTANICAL CLUB. [New York, June, 1870.

47. **Monstrosities of Trillium grandiflorum** — the prevailing Trillium here—are occasionally met with in this vicinity, and brief mention of the extent of the variation may not be uninteresting for comparison with similar accounts from other localities. The forms found here have petals more or less turned to green, with long petioled smaller leaves, borne lower down on the stem ; or with stem leaves *entirely wanting*, and a single radical leaf instead. The Calyx of the leafless stemed form appears larger and more leafy.

Hepatica triloba and *Solea concolor*, mentioned by Mr. Hall in Nos. 2 and 3 of the Bulletin, grow here. E. L. Hankensen.

Newark, Wayne, Co., N. Y.

48. **Trillium erectum**, L., Var. **album**, Pursh.—From observations made in my pretty extensive tramps in the woods of Central and Western New York, where *T. erectum* and *T. grandiflorum*, Salisb. are exceedingly abundant, I am inclined to think that the Var. *album* is only an accidental thing. The parts of the Trillium plants that appear above ground so entirely disappear in summer, that we cannot keep a perfectly strict watch of the same root without digging it up; but I have watched individual plants of this variety as closely as possible, and seen the regular purple flower in their place the next year; and have also seen the Var. *album* flower in places where the year before a purple flower had appeared. I have noticed, too, that, as a *rule*, the Var. *album* is a starveling; rarely as large or as healthy as the purple plants in the midst of which it grows. Also, I have rarely found a Var. *album* away from the company of the normal plant, and never more than three or four plants together, though they are quite common. As to the color of the petals, I have seen them of all shades, from creamy yellow, or greenish white, to the normal purple; sometimes with a blush of purple in the central part of the petal; sometimes with faint streaky tinges of purple lengthwise of the petal, though not at all like *T. erythrocarpum*, Michx. It has also, less scent. My strong impression is that it is simply an unhealthy state of the *T. erectum*.

I do not know whether I have ever seen Gray's Var. *declinatum* but in the woods of Central New York one may often see myriads of the *T. erectum*, with the peduncles all bent down, so that the flower is under the leaves; as completely deflexed as that of *T. cernuum*, L., but not otherwise like it. I have sometimes walked for a whole day, and scarcely seen a plant whose flower was not thus deflexed; at other times, and in other places, I have noticed these in the company of, and mingled with, erect ones. The peduncle is deflexed, with a sharp angular bend, just above the leaves, and not by any curving or drooping. I have never met with the petals "white" or "pink," as in Gray's description, but have seen them of the Var. *album* sort, now and then. Gray's description of *T. erectum*, L., in Manual, p. 523, speaks of the peduncle as "usually rather inclined than erect"; but whether that phrase is intended to cover the entirely deflexed state, I do not know.

Trillium grandiflorum takes very well to cultivation, increases and thrives in gardens, and is worth introducing. *T. erectum* thrives equally, but is hardly as desirable: *T. erythrocarpum* is very difficult to keep alive in a garden. I. H. Hall.

49. **Viola pedata, L.; "var. alba."**—I have in years past often found this variety in Connecticut, in several places in New Haven and Litchfield counties, and particularly along the line of the New Haven and Northampton R. R. My friend, Rev. Prof. J. A. Paine, Jr., informs me that he has repeatedly found it in Oneida County, north of Rome, also near Schenectady, and in Massachusetts, and elsewhere frequently. The Long Island locality is on the Coney Island (horse-car) railway, about three quarters of an hour from the Fulton Ferry, and was discovered by Miss Emma Beach of Brooklyn. In the same place grow several other varieties, viz. the "var. bicolor," others with petals streaked and spotted, and others with such pencilled markings as are frequent on the flowers of the common V. tricolor of the gardens.

As to the "var. tricolor," I have found it almost everywhere where the V. pedata grows at all, and by no means very "sparingly." I am inclined to think that neither this nor the other varieties have enough permanence to deserve a special name. I. H. H.

50. **New Immigrants.**—It is probable that many foreign weeds may yet secure a foothold on our soil; their arrival and fortune deserve to be watched. Last summer it was observed that *Crepis virens*, L. var. *diffusa*, had taken possession of the grassy banks in Greenwood Cemetery, though it had not apparently spread beyond. The summer before, I noticed a well grown plant of *Sisymbrium Alliaria*, Koch, in the main street of Flatbush village, so flourishing that there seemed no reason why it should not spread. This summer, Mr. Ruger finds quite a growth of them in the ditches near the rail-road station. W. H. L.

51. **Lepidium intermedium,** Gray.—This western species has not yet been detected here, but it so closely resembles *L. Virginicum* that it may be overlooked if it arrives. I have lately received a good specimen from Texas, and find the pods rather broader than long, with the ears at top not so strongly marked as in the latter. The embryo more resembles that of *L. ruderale*, but with a longer cleft in the lower half. *L. Virginicum* has pods rather longer that broad; *L. ruderale* likewise, but only about half the size of the other two. W. H. L.

52. **Valeriana officinalis,** L., has escaped from cultivation at Fresh Pond, L. I. About thirty plants were observed. M. Ruger.

53. **Seedling Locusts.**—There are several young locusts that have sprung from seed on our place, and I have noticed others in the neighborhood that must have originated in the same manner. I have to dig up many locust seedlings from my flower bed.

R. Tompkins, Somers, Westchester Co.

54. **Rhus copallina,** L.—Mr. Hall calls our attention to the omission in our last list of this plant, which is common enough on New York

Island and in all other parts of our district. Mr. Hall correctly observes that it is by no means confined to "rocky hills" as Gray's Manual seems to imply; it flourishes, for example, on the sandy plains of Long Island. Difficulties in the way of proof-reading may account for this omission, and other blemishes in our last number.

55. **Synchronism.**—If several species are found growing in the same situation, near each other, and under the same conditions, the probability is great that their respective stages of forwardness will indicate the true periodical relations of these plants to each other, better than the dates of specimens gathered in different situations and at different times. If we had a sufficiency of such data, we could correlate the periods in the life of all our plants. We are desirous of attempting something of this sort; and request those interested to send us from time to time, during the season, specimens of at least three or four species gathered at the same time and in the same spot, with the date, and situation; or, if it is inconvenient to send specimens, to send a statement. It is evident that we should have here material valuable for the catalogue in other ways. It is desirable but not necessary for the specimens to be named, and no native plant, with trace of flower or fruit, would be inappropriate.

56. **Materials for the Catalogue.**—We have received an interesting communication from Dr. O. W. Morris, respecting the Flora of the island of New York. We had thought to publish in a separate article, but for economy of space conclude that it is better to indicate for the future by the letters N. Y. the plants that are or have been found on the Island, and take some opportunity, hereafter, to name those already on our list and not thus specified.

We wish much that our friends would bestir themselves, both to get for us local lists, and to supply the Herbarium with specimens. At present, the only district tolerably well known to us, is our island, and that, only for the orders included in Gray's Manual. As an illustration of the interest of local lists, we may mention that we have lately discovered that there is a region north of us, including parts of Westchester, Dutchess, and Ulster Counties, where *Claytonia* is rare or altogether absent. In a trip to Ulster County this spring, we did not see *Anemone nemorosa;* and we learn from Lake Mohegan, Westchester Co., that *Houstonia cœrulea* is not found there.

LEGUMINOSÆ.

LUPINUS, Tourn.—**L. perennis**, L. ; not uncommon in sandy soils, in New Jersey, and on Long Island ; Orange Co., *Austin*

CROTALARIA, L.—**C. sagittalis**, L. ; common in sandy soil; N. Y.

TRIFOLIUM, L.—**T. arvense**, L. ; common.—**T. pratense**, L. ; common.—**T. repens**, L. ; common.—**T. agrarium**, L. ; common.—**T. procumbens**, L. ; not uncommon ; var. **minus**, not so common ; New York Island, *O. W. Morris:* all N. Y.

MELILOTUS, Tourn.—**M. officinalis**, Willd.; Hudson River, R. R. below Hastings, *W. H. L;* Brooklyn, *T. F. A.*—**M. alba**, Lam.; very common now, though not in *Torr. Cat.;* N. Y.

MEDICAGO, L.—**M. sativa**, L.; not rare in or near cultivated grounds. N. Y.—**M. lupulina**, L.; every where. N. Y.

ROBINIA, L.—**R. Pseudacacia**, L.; common. N. Y.

TEPHROSIA, Pers.—**T. Virginiana**, Pers.; not uncommon in the sandy soils of L. I. and New Jersey; probably also on dry hills within our limits in Westchester Co.

ASTRAGALUS, L.—**A. Canadensis**, L.; Westchester Co.? *Le Roy.*

DESMODIUM, DC.—**D. nudiflorum**, DC.; common. N. Y.—**D. acuminatum**, DC.; Palisades; Croton River, *T. F. A.*; New Jersey, *Austin;* Westchester Co., *Le Roy;* N. Y., *O. W. M.*—**D. pauciflorum**, DC.; Westchester Co.? *Le Roy.*—**D. rotundifolium**, DC.; rather common, N.Y.—**D. canescens**, DC.; Bloomingdale, *Torr. Cat.*, but not assigned to this part of the State in *State Flora;* Inwood, *W. W. Denslow;* New Jersey, *Austin.*—**D. cuspidatum**, Torr. & Gray; *Torr. Cat.; T. F. Allen;* Chatham, N. J., Flatbush, L. I., *W. H. L.*—**D. lævigatum**, DC.; Kingsbridge, *State Flora;* Bergen Point and Chatham, N.J., *W. H. L;* Suffolk Co., L. I., *T. F. A.*—**D. viridiflorum**, Beck; *Torr. Cat.*, Brooklyn, and New York Island, *State Flora;* Croton River, *T. F. A.;* New Jersey, *Austin; W. H. L.*—**D. Dillenii**, Darlingt.; common; N. Y.—**D. paniculatum**, DC.; common; N. Y.—**D. Canadense**, DC.; very common; N. Y.—**D. rigidum**, DC.; common; N. Y.—**D. ciliare**, DC.; common; N. Y.—**D. Marylandicum**, Boot.; common; N. Y.

LESPEDEZA, Michx.—**L. procumbens**, Michx.; Northern part of New York Island; Long Island, *State Flora;* New Jersey; not uncommon.—**L. repens**, Torr. & Gray; Glen Cove, *Coles;* Long Island, *State Flora & T. F. A.;* New Jersey, *Austin;* Croton River, *T. F. A.*—**L. violacea**, Pers.; common, with the varieties **divergens**, **sessiliflora**, **angustifolia**; N.Y.—**L. hirta**, Ell.; New York; common.—**L. capitata**, Michx.; N. Y.; very common; var. **angustifolia**, *State Flora.*

STYLOSANTHES, Swartz.—**S. elatior**, Swartz; New York Island; Elizabethtown, *Torr. Cat.;* Glen Cove, *Coles;* South Amboy & Red Bank, N. J.

VICIA, Tourn.—**V. sativa**, L.; Hoboken, *Torr. Cat.;* Long Island; New York Island, *O. W. M.*—**V. tetrasperma**, L.; Hoboken, *Torr. Cat.;* New Jersey, pod dries yellow, *T. F. A.;* New York Island; *O. W. M.*—**V. hirsuta**, Koch; *Torr. Cat.*; New York Island, *O. W. M. & others;* common in the neighborhood of N. Y., *State Flora;* Newtown, L. I., *Ruger;* pod dries black, *T. F. A.*—**V. Caroliniana**, Walt.; High hills, *Torr. Cat.; Le Roy.*—**V. Americana**, Muhl.; shady rocky situations, *Torr. Cat.;* N. Y. Island, *O. W. M.*

LATHYRUS, L.—**L. maritimus**, Bigelow; on the shores of Long Island, and the harbor of New York, *Torr. Cat.;* Glen Cove, *Coles;* St. Ronan's Well, Flushing, *T. F. A. & M. R.*—**L. palustris**, L.; Var. **myrtifolius**; New York Island, *Torr. Cat.*, *W. W. Denslow;* abundant in Hackensack marshes.

APIOS, Boerhave.—**A. tuberosa**, Mœnch; N. Y. and common.

PHASEOLUS, L.—**P. perennis**, Walt.; Bloomingdale woods, *Torr. Cat.;* Island of New York, and Long Island, *State Flora; Le Roy;* Little Snake Hill, *T. F. A.;* a little above Pocantico Bridge on Hudson River R. R., *I. H. H.*—**P. diversifolius**, Pers.; Island of New York, and common.—**P. helvolus**, L.; Greenwich, *Torr. Cat.!* Only in sandy fields on Long Island, *State Flora.*

CLITORIA, L.—**C. Mariana**, L.; South Brooklyn station lost; no other known in this vicinity.

AMPHICARPÆA, Ell.—**A. monoica**, Nutt.; very common; N. Y.

GALACTIA, P. Browne.—**G. glabella**, Michx.; New Jersey, *Torrey.*—**G. mollis**, Michx.; Washington Heights, N. Y., *W. W. Denslow.*

BAPTISIA, Vent.—**B. tinctoria**, R. Br.; common.

CERCIS, L.—**C. Canadensis**, L.; woods, New Jersey, *Torr. Cat.*

CASSIA, L.—**C. Marilandica**, L.; not uncommon; particularly on Long Island; N. Y., *Le Roy.*—**C. Chamæcrista**, L.; rather common; N. Y.—**C. nictitans**, L.; common; N. Y.

GLEDITSCHIA, L.—**G. triacanthos**, L.; common in cultivation; and perhaps naturalized on Long Island, *Coles.*

CORONILLA.—**C. varia**, DC., growing in considerable patches by road sides in Westchester Co. and on Staten Island. *W. H. L.*

AMORPHA.—**A. fruticosa**, L.; Var. **Lewisii**, along the Hudson River R. R. at Tarrytown, *I. H. H.*

ROSACEÆ.

PRUNUS, Tourn.—**P. Americana**, Marshall; New Jersey, *Austin;* Tappan, *W. H. L.; Le Roy.*—**P. maritima**, Wang.; Shores of Long Island and Staten Island, abundant.—**P. Pennsylvanica**, L.; New Jersey, *Torr. Cat.;* Glen Cove, *Coles;* Westchester Co., *Le Roy;* not common near the city.—**P. Virginiana**, L.; N. Y., *O. W. M.;* not uncommon.—**P. serotina**, Ehrhart; common; N. Y.

SPIRÆA, L.—**S. opulifolia**, L.; rocky hills, N. S., *Torr. Cat.*—**S. corymbosa**, Raf.; Morris Co., N. J., *Austin.*—**S. salicifolia**, L.; common; N. Y.—**S. tomentosa**, L.; rather common.

GILLENIA, Mœnch.—**G. trifoliata**, Mœnch; hill sides, N. J., *Torr. Cat.*

POTERIUM, L.—**P. Canadense**; New Durham etc., N. J.; N. Y., *O. W. M.*

AGRIMONIA, Tourn.—**A. Eupatoria**, L.; common; N. Y.—**A. parviflora**, Ait.; rather common.

GEUM, L.—**G. album**, Gmelin; common; N. Y.—**G. Virginianum**, L.; Chatham, N. J., *W. H. L.; Torr. Cat.; Le Roy;* probably not uncommon.—**C. strictum**, Ait.; not found on Hudson far below Albany, *State Flora; T. F. Allen & Le Roy,* but no locality given.—**G. rivale**, L.; bog meadows, N. J., *Torr. Cat.*

POTENTILLA, L.—**P. Norvegica**, L.; common; N. Y.—**P. Canadensis**, L.; very common; N. Y.; Var. **simplex**, *Torr. & Gray;* common; N. Y.—**P. argentea**, L.; common; N. Y.—**P. recta**, Willd.; Glen Cove, *Coles;* Palisades, *Wilbur;* an escape.—**P. Anserina**, L.; Glen Cove, *Coles;* salt marshes of Long Island, *State Flora;* shores of Newark Bay, *W. H. L.*—**P. fruticosa**, L.; in meadows, Wehawken, *Torr. Cat.;* Morris Co , N. J., *Austin.*—**P. tridentata**, Ait.; northern New Jersey, *Austin.*—**P. palustris**, Scop.; New Jersey, *Torr. Cat.*

FRAGARIA, Tourn.—**F. Virginiana**, Ehrhart. *Austin, Le Roy, T. F. Allen;* Glen Cove, *Coles;* rare in the neighborhood of New York, and on Long Island, *State Flora.*—**F. vesca**, L.; very common; N.Y.

RUBUS, Tourn.—**R. odoratus**, L.; not uncommon; N. Y.—**R. triflorus**, Richardson; not uncommon; N. Y., *Torr. Cat.*—**R. strigosus**, Michx.; not uncommon.—**R. occidentalis**, Michx,; common; N. Y. **R. villosus**, Ait.; very common; N. Y.; Var. **humifusus**; common. —**R. Canadensis**, L.; common; N. Y.—**R. hispidus**, L.; common.— **R. cuneifolius**, Pursh; Long Island? *State Flora;* South Amboy; Tottenville, Staten Island, *W. H. L.;* East New York, *J. W. Congdon.*

ROSA, Tourn.—**R. Carolina**, L.; very common; N. Y.—**R. lucida**, Ehrhart; common.—**R. rubiginosa**, L.; not uncommon by road sides; N. Y., *O. W. M.*—**R. micrantha**, Smith; Hoboken: *Austin;* Sands Point, L. I., *W. H. L.*

CRATÆGUS, L.—**C. coccinea**, L.; not uncommon; N. Y.—**C. tomentosa**, L.; Harlem River, N. Y., *W. H. L.;* Var. **pyrifolia**, on rocks, in woods, *Torr. Cat.*—**C. Crus-galli**, L.; in woods, N. Y., *Torr. Cat.; O. W. M.;* and elsewhere not uncommon, *T. F. A., W. H. L.*, though perhaps from cultivation.—**C. parifolia**, Ait.; New Jersey; Tottenville, Staten Island, *W. H. L.*—**C. oxycantha**, L.; is frequently spontaneous about old grounds, N. Y. and elsewhere.— **C. cordata**, Ait.; in *Torr. Cat.* is said to grow "in woods and on the banks of rivulets among rocks, New York and New Jersey," but it is not mentioned in the State Flora, and we only know of it in old hedges.

PYRUS, L.—**P. coronaria**, L.; in woods, New Jersey, *Torr. Cat.*, but probably an error.—**P. arbutifolia**, L.; Var. **erythrocarpa**; Var. **melanocarpa**; both common; N. Y.

AMELANCHIER, Medic.—**A. Canadensis**, Torr. & Gray; common.—Var. **Botryapium**; common; Var. **oblongifolia**; N. Y., *O. W. M.; Denslow; Allen.*

57. **Lysimachia Fraseri**, Duby; *(L. lanceolata,* Pursh, non Nutt.*)*— Among the interesting plants which I collected on Lookout Mt. (Tenn. & Geo., June 18—20, 1870,) was a showy Lysimachia, which both Dr. Torrey and Prof. Gray refer to the above species; but which differs so widely from the descriptions hitherto recorded, that I venture to offer the following. This showy plant grows abundantly, in company and flowering at the same time with *Œnothera glauca,* Mchx., on and around the point of the mountain; it is rank and stout, has a beautiful pyramid of flowers, reddish stem, and an exquisitely delicate red border to the leaves, bracts, and

sepals. The stem is erect, two to four feet high, smooth below, becoming glandular above. *Leaves*, 2 to 5 inches long; mostly 4 whorled, but often alternate, opposite, or 3 whorled; ovate lanceolate, sessile, tapering to the base, long acuminate, smooth, light green above, pale or glaucous beneath, irregularly dotted with minute elevated red spots; margin entire, delicately red lined, sparingly glandular under a lens; one ribbed, feather veined; midrib white, prominent beneath; lower and upper leaves becoming smaller. The upper whorl of leaves mostly bear the lowest whorl of the panicle in their axils. *Panicle* 3 to 8 inches long, terminal, pyramidal, compound. *Peduncles* mostly irregularly 4-whorled, glandular, bracted. *Pedicels*, often twice the length of the petals, either whorled at the extremity of the peduncle or scattered, bracted. *Bracts* persistent, red edged and tipped. *Sepals* narrowly lanceolate, sharp pointed, red margined, and glaudular, (not fringed,) ½ to ⅔ the length of the petals. *Corolla* ½ to ¾ of an inch in diameter. *Petals* broadly ovate, *abruptly acute*, sparingly glandular under a lens, not red dotted nor margined. *Filaments* monadelphous, slightly unequal.

The plant deserved a name expressing the delicate red margin to the leaves, bracts, and sepals, which the sunlight renders quite effective in the living plant. I found no traces if it along the mountain farther south, nor at Stone Mt., Georgia. T. F. Allen.

58. **Migrations.**—Coming on the N. Y. Central R. R. a day or two since, I saw a number of plants of *Echinacea purpurea*, Mœnch, in full flower, at different places in the Mohawk valley east of St. Johnsville; perhaps thirty plants in all, scattered for perhaps four or five miles along. This is the first time I have seen the plant eastward. Its western companion, *Rudbeckia hirta*, L., I think first made its appearance in the eastern part of this state in 1860–1862. On the prairies they grow commonly every where.

Perhaps some western botanist can inform us how for west *Leucanthemum vulgare*, Lam., has travelled. In 1868, I had applications for specimens from Ann Arbor, Mich.; but in 1869, I saw it growing freely about the R. R. station at that place, though it seemed not yet to have crossed the state of Michigan. In Illinois and Iowa, I saw none; though *Maruta* and other wayside weeds were abundant.

Isaac H. Hall, 36 Pine St., N. Y.

59. **Lespedeza Stuvei, Nutt.**—Mr. Chas. H. Peck, of Albany, writes that he found this plant in 1868, between East New York and Canarsie, in the brush near the first crossing on the dummy road, some thirty to fifty rods from the track, on the east side. Mr. Hall calls our attention to his having found a specimen of this plant, in shady woods east of Tarrytown, as reported in Paine's Catalogue; which likewise contains the Amorpha elsewhere noticed.

62. **Material for the Catalogue.**—*Lupinus perennis*, L., is found at New Rochelle, and also between White Plains and Tarrytown. It grows abundantly in Western Connecticut.—*Melilotus officinalis*, Willd., is found with the above on sandy points, all the way from New Rochelle to New Haven. It is abundant on the Schenectady

and Troy R. R. *M. alba*, Lam., grows very densely on wharves all along the Hudson, and, on the railroads north and west of Albany, and in Western New York, is still the prevailing form, as it is with us.—*Tephrosia Virginiana*, Pers., I have seen at Throggs Neck, not quite down on the neck, and perhaps near White Plains.—*Lespedeza repens*, Torr. & Gray, on the land above a stone quarry, below Sing Sing.—*Desmodium viridiflorum*, Beck, at Sleepy Hollow Cemetry, above Tarrytown. (It is to be observed that the flowers of several Desmodiums turn green before withering, just as those of *Trillium grandiflorum* turn rose color.)—*Desmodium acuminatum*, DC., I have found nearly as common as *D. nudiflorum*, all about New York.—*Vicia tetrasperma*, L., repeatedly along the Hudson River, in Westchester Co. I H. H.

Our floral region may be roughly subdivided as follows : First District; the neck of land between the Hudson and Long Island Sound, extending to Croton Point on the former, and Greenwich Point in Connecticut on the latter, and separated by the Harlem River from the: Second District; New York Island, which is its geological continuation: Third District; the Valley of the Hackensack, including the Palisades, and stretching from Rockland Lake to Newark Bay: Fourth District; Staten Island, which may be considered the geological continuation of the Third: The Fifth District may be generally described as the Valley of the Passaic, being watered by streams most of which flow into that river, and having for its northern and western limits the townships of Ramapo, Pompton, West Milford, Rockaway, Randolph, Mendham, Bernard, and Bridge Water; being separted by the Raritan River on the south from the: Sixth District; which includes the country between the Raritan and the Ocean, having on its western and southern boundaries Milton, Spotswood, Freehold, and Deal: The Seventh District covers the western end of Long Island, embracing Kings and Queens Counties, and the western half of Huntington township in Suffolk Co. This distribution is doubtless imperfect, but this very imperfection will serve our present purpose, which is to call the attention of collectors to the point, that any rational catalogue of of our flora, should distinguish what plants are absent from, or peculiar to each natural region, and should contain such information in reference to soil, climate, etc., as may help to elucidate the distribution. It would seem that there must be persons residing in each of these seven districts, who would be ready to furnish a list of plants noticed in their several localities: but at present we have but one local list to refer to, (L. I.), and few localities given in the others. We hope in the next issue to bring the catalogue up to **Umbelliferæ**, and invite the members of the club and others interested to send us fresh lists of the localities known to them, as far as that Order, and in general to keep us supplied in advance. We are thankful for all subsequent corrections and additions but of course prefer to have our list as complete as possible when first published. A note-book carried on a walk, would be found very useful.

63. **Lemna.**—Between Huguenot station and Annadale on the Staten Island R. R., branching from a road running nearly parallel with the rail road, is another road leading to the shore. A brook crosses this, and among the bushes on the left hand side *Epigæa* grows finely: crossing the fence, beyond the brook, and following a path obliquely towards the shore, rather more than a quarter of a mile into the woods, we find two little hollows filled with water. About the end of July, I found these covered with the Lemna mentioned in the following note from Dr. Torrey. Since receiving it, I have been able to see the palmate veins, very distinctly in the decayed leaves. The fronds vary much in size, those with mature fruit I have always found quite small, but have seen the stamens on some nearly or quite as large as the ordinary *S. polyrrhiza.* Even in July, the plants were producing what Hegelmaier calls the winter fronds together with the usual kind. I have sent good specimens to him. Excursions made to procure more specimens were successively less productive; I presume, therefore, that the flowers were most abundant early in July: *L. perpusilla*, Torr., which is intermingled with it, is beginning to blossom at the end of August. The *L. umbonata, A. Braun*, is referred by Hegelmaier to *S. polyrrhiza.*

W. H. L.

I have made a careful study of the Lemna that you brought me from Staten Island. It is clearly a Spirodela, if that genus be adopted, but, whether a mere variety of *L. (Spirodela) polyrrhiza* or a distinct species, I am in doubt. In all the fertile flowers that I examined, there was but a single ovule in each ovary. Two of the fronds bore ripe fruit, each with a single seed. The fronds are smaller than in the ordinary state of *L. polyrrhiza*, seldom more than 2½ lines long, and I found no traces of palmate nerves.

Five or six years ago I received living specimens of a Lemna, in flower and fruit, collected by Mrs. Brown, of Brattleboro, Vermont, and named, *L. polyrrhiza.* I have preserved no notes respecting the ovary, and the specimens reserved for my herbarium have been too much injured to permit a reexamination of them. It is doubtful, therefore, whether the plant is similar to yours, or a genuine *L. polyrrhiza*, with binovulate ovaria.

Many years ago, (1845,) I received from Dr. Engelmann a Lemna found by him near St. Louis, and named "*L. umbonata, A. Braun in litt.*" It was without flowers or fruit. I can not find any character in which it differs from L. polyrrhiza; and Mr. C. F. Austin, who made a special study of North American Lemnaceæ, thinks it is not distinct from that species. You have been very fortunate in detecting the flowers and fruit of a plant that is so very rarely seen in such condition, notwithstanding it is abundant in almost every part of the world. J. T., Columbia College, Aug. 11th, 1870.

64. **Additional observations on the flora of Lookout Mt.**—Along the perpendicular cliffs are numerous shelves worn horizontally, (usually from veins of conglomerate,) often quite deep: in these recesses, seemingly beyond the reach of sunlight or rain, in the dry dust, we

find magnificent beds of *Silene rotundifolia*, Nutt., with stems very brittle at the nodes. I did not see it, (or, at least, very exceptionally,) in the open ground, where *S. Virginica*, L., seemed to take its place; *Azalea arborescens*, Pursh, was almost out of flower, though in cooler places I found good specimens. *Careopsis senifolia*, Michx., everywhere,—the smooth variety common, the soft hairy form, (in no other way different,) not common: this plant, and variety, I first found at the Mammoth Cave, thence going south, common every where. On the top of the mountain, on the rocks, *Talinum teretifolium*, Pursh; *Parthenium integrifolium*, L.; *Helianthus tomentosus*, Mchx.; *Schrankia uncinata*, Willd., (all through the South); *Phlox Walteri*, Chap.; *Rhus Toxicodendron*, L.; Var. *quercifolium*, Mchx , very queer; *Pentstemon Digitalis*, Nutt.; *Ligusticum actæifolium*, Mchx., (the natives call it Angelica root); *Rudbeckia fulgida*, Ait.; *Vaccinium arboreum*, Marshall, very common all over; *Calycanthus floridus*, L., along the streams; *Stenanthium angustifolium*, Gray, grows under the cliffs, at the Point. Along down the mountain sides, *Phlox maculata*, L., and *divaricata*, L., (fruit); *Oxydendrum arboreum*, DC.; *Polypodium incanum*, Swartz; and *Asplenium montanum*, Willd.; *Clitoria Mariana*, L.; *Salvia urticifolia*, L.; *Ipomea pandurata*, Meyer; *Robinia hispida*, L., quite common, but with no traces of flowers or fruits. In an old yard, I found *Heliophytum Indicum*, DC. Every where in fields and open woods is found *Ruellia strepens*, L., growing singly and strictly erect. At Chicago, Mr. Babcock showed me a locality of *Ruellia ciliosa*, Pursh, which grows in clumps and is prostrate. I found *R. strepens* always quite hairy. At Lula Lake and Falls on Lookout Mt., six miles from the Point grows abundantly *Rhododendron Catawbiense*, Mchx., (I only found it in fruit,) also *Diervilla sessilifolia*, Buckley, *Xanthorrhiza apiifolia*, Marshall, *Rhamnus lanceolatus*, Pursh; and magnificently wild, *Yucca filamentosa*, L. *Œnothera glauca*, Mchx., I found wherever I went on the Mountain.
T. F. Allen.

65. A few days since, at Saratoga Springs, in the woods near the Excelsior Spring, amongst a large number of plants of *Aspidum thelypteris*, Swartz, I found several with the stipe or rachis enameled, black and shiny, like that of *Adiantum pedatum*, L , or of *Asplenium ebeneum*, Ait. The blades of the fronds had a somewhat coppery tinge. Some were beginning to fruit, but most showed no signs of fructification. I gathered a dozen or so, but the extreme heat of the sun withered and spoiled them before I could get them in press. Near by were many Osmundas (either *O. cinnamomea* or *O. claytonia*—probably the latter,) with many fronds of that puzzling shape that so nearly resembles Onoclea—specimens of which I have now and then seen, and which I have never before been able to place. July, 28th.
I. H. H.

66. Pyrus coronaria, L., is said to occur at Old Tappan, N. J., on the farm of the late Thomas Waring; also at New Bridge. It is not rare in Morris Co. about Mendham! Succasunny! Chester! Peapack! etc. It also occurs throughout Western and Southern New Jersey, and about Port Jervis, N. J.!

Prunus Virginiana, L., is very rare near Closter, the only locality known to me is about three quarters of a mile N. W. of the station; **P. Americana**, Marshall, is found at Closter.

Gillenia trifoliata, Mœnch, I have never seen in N. J. this side of the Musconetcong Mts.

Geum Virginianum, L., is not rare in bogs near Closter; **G. strictum**, Ait., is quite common near Parcipany.

Spiræa opulifolia, L., and

Potentilla arguta, Pursh, Rocks, High Torre, Haverstraw; **P. palustris**, Scop.; Budd's Lake, Morris Co., N. J., [both extra limital, *Eds.*]

Fragaria Virginiana, Ehrhart, is common about Closter.

Rubus strigosus, Mchx., is common in Orange and Sussex Co's, but I never saw it this side of, nor even on, the Musconetcong Mts. I have searched for it about Sufferns, Haverstraw, Ramapo, Mendham, Boonton, Budd's Lake, Stanhope, Hacketstown, Chester, Morristown, Closter, etc., but never found it near these places.—**R. neglectus**, Peck, a hybrid, I have no doubt, between *R. Strigosus* and *R. occidentalis*, occurs in Orange Co., but seldom more than one bush in a place; it will hardly average a bush to a hundred acres of land. A *Var.?* of *R. occidentalis* with whitish or cream colored fruit appears to have escaped from cultivation at Franklin, Essex Co., N. J., (near Caldwell.) It is thoroughly established in pastures and thickets. I have heard from several persons that a white-berried Rubus grows near Sufferns, N. Y. C. F. Austin.

67. Mr. Congdon of Rhode Island used to find at East New York, **Ascyrum Crux Andræi**, L., and at Irvington **Polanisia graveolens**, Raf. **Scirpus Olneyi**, Gray, grows abundantly at junction of Erie & N. R. R. of New Jersey. There is a large clump of **Melilotus officinalis**, Willd., at Communipaw on the N. J. Central R. R., where also **Cannabis sativa**, L., is very abundant. T. F. A.

68. **Prunus Pennsylvanica**, L., grows on Weehawken heights. It is also in the Central Park, west side, not for from the 100th St. entrance. *Potentilla fruticosa*, L., also grows finely, and, I think, multiplies there; and *Hypericum Kalmianum*, L., near the Seventh Ave. entrance, and elsewhere, is from ten to twenty times as large as the wild plants about the Niagara River. I found **Potentilla arguta**, Pursh, high on the rocks, east of Tarrytown, (Paine's Cat. p. 25,) and, since then, near Wilton, Conn. [In the N. W. part of Connecticut, it is a pernicious weed, overrunning the fields, and is known as Hardhack. *Eds.*] I. H. H.

69. **Native Plants in Central Park.**—In 1857 Messrs. Rawolle and Pilat published a list of plants gathered in August and September in the Central Park. Most of these were native or naturalized, among them the following, which we have not heretofore credited to the Island. **Prunus maritima**, Wang., scarce; **Spiræa tomentosa**, L., very rare; **Agrimonia parviflora**, Ait., rather common; **Rubus hispidus**, L.; **Rubus cuneifolius**, Pursh; **Rosa lucida**, Ehrhart; **Cratægus tomentosa**, L., **Var. pyrifolia**.

70. **Geranium pusillum**, L.—Since my last report, I have found a patch of this plant in Love Lane, a few steps east of the Main street of Flatbush: I have also found **Cornus Canadensis**, L., on the western border of the pond between East New York and Canarsie.

M. Ruger.

SAXIFRAGACEÆ.

RIBES, L.—**R. Cynosbati**, L.; bogs, Closter, N. J., *Austin*; Preakness Mountains, N. J., *W. L. Fischer*.—**R. hirtellum**, Mchx.; bogs, Closter, N. J., *Austin*; High Bridge, N. Y., *W. H. L.*—**R. rotundifolium**, Mchx.; N. J., *Allen*, *Austin*; Fort Lee, *W. H. L.*✓; foot of 60th St. North River, *Le Roy!*—**R. prostratum**, L'Her.; bogs, Closter, N. J., *Austin*.—**R. floridum**, L.; Long Island, *Ruger*, *Allen*; N. Y., *Morris*; New Jersey, *Austin*; Westchester Co., *W. H. L.*—**R. rubrum**, L.; near Maspeth, etc., L. I., *Ruger*; New Durham Swamp, *Allen*; N. Y., *Morris*; but probably an escape.

ITEA, L.—**I. Virginica**, L.; probably grows within our limits in N. J., though not reported nearer than Manchester.

PARNASSIA, Tourn.—**P. Caroliniana**, Mchx.; not uncommon.

SAXIFRAGA, L.—**S. Virginiensis**, Mchx.; very common; N. Y.—**S. Pennsylvanica**, rather common; N. Y., *O. W. M.*

HEUCHERA, L.—**H. Americana**, L.; common.

MITELLA, Tourn.—**M. diphylla**, L.; common in Northern part of Bergen Co., etc., N. J.; but never saw it on Palisades, or south of Closter, *Austin*; Preakness, *Fischer*; Morristown, *W. H. L.*; banks of Bronx, W. Mt. Vernon, *Hall*; Greenburgh, Westchester Co., *W. H. L.*; N. Y., *O. W. M.*

TIARELLA, L.—**T. cordifolia**, L.; Passaic Falls, *Torr. Cat.*; on the banks of the Bronx, with *Mitella*, *Hall*.

CHRYSOSPLENIUM, Tourn.—**C. Americanum**, Schwein.; common; N. Y.

CRASSULACEÆ.

PENTHORUM, Gronov.—**P. sedoides**, L.; very common; but not so, near Closter, *Austin*; N. Y.

SEDUM, Tourn.—**S. acre**, L.; on rocks, Yorkville and Morrisania, *W. H. L.*; not in *Torr. Cat.*—**S. ternatum**, Mchx.; along the road which bounds Mr. Herbert Torrey's place, Rockland, N. J., opposite his grounds, 1868, *Austin*; Trains Meadow Road, near Jackson Av., L. I., *Ruger*.—**S. Telephium**, L.; roadsides, common; not in *Torr. Cat.*

HAMAMELACEÆ.

HAMAMELIS, L.—**H. Virginica**, L.; common; N. Y.

LIQUIDAMBAR, L.—**L. Styraciflua**, L.; very common; N. Y.; common on the Palisades, but does not occur west of the Hackensack River, *Austin*: near Bloomfield, N. J.; *Austin*.

✓– Escaped R. Grossularia: Bull. II. 92.

HALORAGEÆ.

MYRIOPHYLLUM, Vaill.—**M. ambiguum**, Nutt.; ponds, Staten Island, New Dorp, *Allen;* Long Island and South Jersey, only in very sandy localities, *Austin;* with its varieties, **natans, capillaceum, limosum,** ponds and miry places, L. I., *State Flora.*

PROSERPINACA, L.—**P. palustris**, L.; common.—**P. pectinacea**, Lam.; is not reported distinctly as within our limits, but, no doubt, will be found in New Jersey.

ONAGRACEÆ.

CIRCÆA, Tourn.—**C. Lutetiana**, L.; common.

EPILOBIUM, L.—**E. angustifolium**, L.; not uncommon; N. Y.; common about Closter, *Austin.*—**E. palustre**, L., Var. **lineare**; *Torr. Cat.;* not uncommon about Closter, *Austin.*—**E. molle**, Torr.; Morristown and Chatham, N. J., *W. H. L.*—**E. coloratum**, Muhl.; very common; N. Y.

ŒNOTHERA, L.—**Œ. biennis**, L.; very common; N. Y.; Var. **muricata**, quite common; Var. **grandiflora**, *Allen;* Var. **parviflora**, *Torr. Cat.*—**Œ. sinuata**; *Le Roy;* South Jersey, *Austin.*—**Œ. fruticosa**, L.; common; N. Y.—**Œ. linearis**, Mchx.; Glen Cove, *Coles*, [perhaps the var. of *Œ. fruticosa*, § 3, page 12, *Eds.*]—**Œ. pumila**, L.; Long Island, *Dr. Knieskern, State Flora;* Mountain north of Closter, rare south of this place, *Austin;* Long Hill, N. J., *W. H. L.; L. R.*

LUDWIGIA, L.—**L. alternifolia**, L.; common; N. Y.; with purple petals, Glen Cove, *Coles.*—**L. sphærocarpa**, Ell.; common about Closter, in low grounds, *Austin;* Fresh Pond, Staten Island, *W. H. L.;* abundant along the shores of Mohegan Lake, near Peekskill, *W. H. L.*—**L. palustris**, Ell.; very common; N. Y.

MELASTOMACEÆ.

RHEXIA, L.—**R. Virginica**, L.; rather common.

LYTHRACEÆ.

AMMANIA, Houston.—**A. humilis**, Mchx.; on the muddy banks of creeks in Hackensack meadows, *Torr. Cat.* This is a variety with broad leaves; the narrow leaved variety is found on Staten Island, *Allen;* Long Island, near Brooklyn, *State Flora;* near Ridgewood, on Myrtle Avenue, *Ruger;* Closter, rare, *Austin.*

LYTHRUM, L.—**L. Hyssopifolia**, L.; Staten Island, along road leading towards shore, near New Dorp, *W. H. L.*—**L. lineare**, L.; Hackensack meadows, *Allen, Leggett.*—**L. Salicaria**, L.; old grounds near R. R. station at Flushing. It is found in Orange Co., *State Flora*, and along the Hudson, *Torrey, Hall*, perhaps within our limits.

NESÆA, Commerson, Juss.—**N. verticillata**, H. B. K.; bogs, common; rare about Closter, *Austin.*

CUPHEA, Jacq.—**C. viscosissima**, Jacq.; Washington Heights, N. Y., *W. H. L.;* abundant near Harlem R. R. above White Plains, *Hall:*

in fields back of Greenwood Cemetry, many of the plants bearing pale purple flowers, *W. H. L.*, 1869.

CACTACEÆ.

OPUNTIA, Tourn.—**O. vulgaris**, Mill.; common on exposed rocks and in sand, Westchester Co. and on New York Island, and Long Island; and in white sand in South Jersey, *Austin;* Preakness Mountain, *Austin;* South Amboy; at Manhattanville with the strong yellow spines of the southern form, *State Flora.*

CUCURBITACEÆ.

SICYOS, L.—**S. angulatus**, L.; not uncommon; N. Y.

UMBELLIFERÆ.

HYDROCOTYLE, Tourn.—**H. Americana**, L.; common; N. Y.—**H. umbellata**, L.; Suffolk and Westchester Co's, *State Flora;* Suffolk Co., *T. F. A.;* Mohegan Lake, Waccabuc Lake, Westchester Co., *W. H. L.;* Red Bank, N. J., along the muddy shore of the Navesink river, opposite the village, and just above the first wagon bridge, along with the rarer—**H. interrupta**, Muhl.; which grows farther back on the springy bank.—A peltate leaved form, which I have not seen in bearing, but which is probably *H. umbellata*, grows abundantly along the Passaic, at Woodside; *W. H. L.*

CRANTZIA, Nutt.—**C. lineata**, Nutt.; reported at Westpoint and Peekskill, in *State Flora.* should be looked for, in brackish mud, within our limits.

SANICULA, Tourn.—**S. Canadensis**, L.; common; N. Y.—**S. Marilandica**, L.; common; N. Y., *O. W. M.*

ERYNGIUM, Tourn.—**E. yuccæfolium**, Mch.; Pine Barrens, N. J., *Gray, Austin;* perhaps extra limital.—**E. Virginianum**, Lam.; borders of salt meadows, Hoboken, *Torr. Cat.*

DAUCUS, Tourn.—**D. Carota**, L.; too common; N. Y.

HERACLEUM, L.—**A. lanatum**, Mchx.; borders of salt marshes, Hoboken, *Torr. Cat.;* Glen Cove, *Coles.*

PASTINACA, Tourn.—**P. sativa**, L.; very common; N. Y.

ARCHEMORA, DC.—**A. rigida**, DC.; Northern R. R. of N. J., *Allen, Austin;* swamps, Fairfield, N. J., *Torr. Cat.*

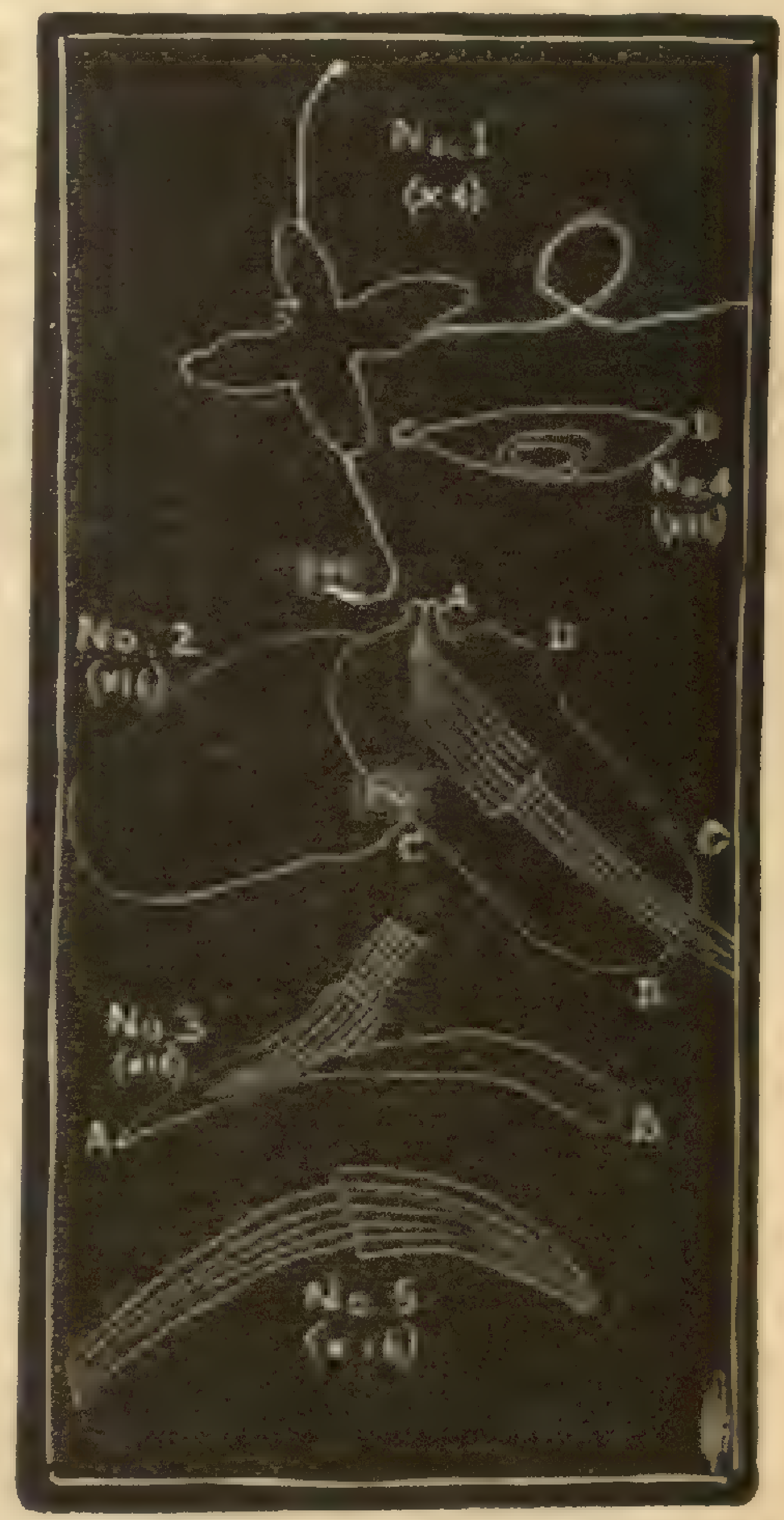
ARCHANGELICA, Hoffm.—**A. hirsuta**, *Torr. & Gray;* common; N. Y.—**A. atropurpurea**, Hoffm.; *Torr. Cat.; L. R.;* common at Closter *Austin;* N. R. R. of N. J., *W. H. L.;* between East New York, and Canarsie, *Ruger.*

CONIOSELINUM, Fischer.—**C. Canadense**, Torr. & Gray; common at Closter, *Austin; L. R.*

ÆTHUSA, L.—**Æ. Cynapium**, L.; N. Y., *Ruger*, vid. § 32; near Pleasant Valley on road to Fort Lee, *W. H. L.*

THASPIUM, Nutt.—**T. aureum**, Nutt.; common; Pascack and Weehawken, but not about Closter, *Austin.*—**T. trifoliatum**, Gray; Long Hill, N. J., *W. H. L.*

71. **Lemna Valdiviana,** Phillippi.—Several years since I found a Lemna in Patchouge pond, L. I., which seemed new and strange to me, not only from its habit,—peculiar in that it grows in tangled *submerged* masses, exactly like *L. trisulca*, L.—but also from the size shape, and grouping of the fronds.



I secured it again this year in the same locality, and, as it does not well correspond in habit with any described form, I give herewith a wood cut of it. The fronds occur mostly in groups of 2, 4 or 6, and are very small, not averaging over two millimetres in length, the groups of four usually measuring four m. m. in diameter. Figure 1 gives a representation of a group magnified four diameters.

The roots are very long—reaching over 25 times the length of the frond—and become curled, and recurved at the extremity besides, intertangling in great confusion. The extremity is provided with a sheath, as shown in Fig. 5. The roots are nerved. The origin of the root from the under surface of the frond is shown in Fig. 2, (enlarged 16 diameters.) Fig. 3 gives a longitudinal section through the root in the direction of *A. B.* in Fig. 2, it shows the oblique origin of the root; the sheath, which extend a very short distance; and the peculiar shape of the surfaces of the frond. Fig. 4 represents a transverse section of the frond in the direction of *C. D.* in Fig. 2. These drawings are made acurately from the microscope.—I have some plants growing in my aquarium, which I can supply to any one wishing them.

The plant corresponds exactly in size and shape to *L. Valdiviana*, (Phillippi), as figured in Hegelmaier, and is doubtless that species, though no mention is made either by him or by Austin, *(L. Torreyi, Austin, Gray's Manual)*, of the submerged habit. I trust the figures will enable other observers to detect the plant. The fronds are very asymetrical.

T. F. A.

We sent some of these Lemnas to Mr. Austin, who writes: "The *L. Torreyi* you send has the fronds subovate and shorter than usual. In two groups of the fronds I found no trace of air cavities." *Eds.*

72. **Wolffia Columbiana,** Karsten.—I have received sterile specimens of a Wolffia, probably *Columbiana*, from Antrim, Michigan, col-

lected by the Rev. D. R. Shoop of Bellevue in that State, in June or July. The waters of a mill-pond were covered with it. I. H. H.

I have just received *Wolffia Columbiana* in flowers from Detroit, M. C. F. A., Sept. 9th.

73. **Trillium erectum**, L.—Mr. Bower tells me that a plant of *T. erectum*, L., Var. *album*, Pursh, which I sent him some five or six years since, keeps its "creamy green" color every year. I may also add that I have received a specimen of the Var. declinatum, Gray, from Michigan, and I can now say, that I never saw it growing in New York State. I. H. H.

74. **Rubus neglectus**, Peck.—I am sure that Mr. Austin is wrong in his suggestion about this being a hybrid. I have had this subject before me ever since a boy, when I helped to collect the forms on which Babington, T. Bell Salter, and others, made so many species. I am satisfied that there is no such thing as hybridization among any of our Rubi, but that all our forms result from a *natural law of evolution.* Rubus would make the very best study for a vegetable biologist. Thomas Meehan.

75. **Obituary.**—Mr. Ignatz A. Pilat, the Chief Gardener of Central Park, died at his residence in this city on September 17th. Mr. Pilat was a native of Austria, and had important positions before political troubles induced him to come to this country. He was connected with the Park from its inception, and held charge of carrying out the details of the plan. How well he performed his part, that noble work bears ample witness. Mr. Pilat published in Austria, a work on Elementary Botany but, though an ardent lover of the science, his occupations allowed him but little time to devote to it in this country. Still he was familiar with our native plants, and when the ground, now occupied by the Park, was taken possession of, he prepared a full catalogue of the wild plants found there. In Mr. Pilat, botanists loose a warm sympathizer with their pursuits, and the community a most estimable public officer. G. T.

76. **Corrigenda.**—One or two material errors occuring in the last number, we take the occasion to correct not only them, but the more important earlier slips. —p. 14, line 7th, for "syllable" read "prefix"; p. 17, last line but one, VITACEÆ, should be the heading over the article Vitis: p. 19, l. 23; for "showed" read "shown"; § 45 read "Broussonetia"; § 46 read "Wallrue"; § 49, l. 14, for "tricolor" read "bicolor"; § 50, last line but one, for "them" read "it"; § 56, l. 3, after publish insert "it"; p. 24, § Medicago lupulina, L. insert semicolon before N. Y.; p. 25 put "L." after Coronilla, and Amorpha; § Spiræa opulifolia, for "N. S." read "N. J."; p. 26 read "Cratægus parvifolia"; § 63, l. 4, for "left" read "right"; § 65, for "slimy" read "shiny"; § 66, for "Waring" read "Haring", read also "Port Jervis, N. Y."; p. 31, § Potentilla arguta, read "High Torne"; § 68, last line but two for "it is &c." read "*P. fruticosa* is &c."

Local Herbarium, 3 E. 33d St.—Editor 224 E. 10th St.

77. **Spirodela**, Schleiden, *illustrated.*—We have received communications from Prof. Hegelmaier and Mr. Austin respecting the flowers and fruit of this plant, found last summer on Staten Island. It will be seen that it still remains a question whether this be the true *Lemna polyrrhiza* of Linnæus. We are expecting soon to hear again from Prof. H., as in the first supply we sent him there was a deficiency of fruit. Mr. Austin illustrates his observations with a drawing.

Tübingen, Aug. 30th, 1870.

Your discovery is of the highest interest for the knowledge of the *Lemnaceæ*, as the flowers and fruit of *Spirodela* rank among the greatest botanical rarities. I myself though working some years on these plants, and examining rich materials of them both living and dried, have never before seen the flowers and fruit; and, in fact, they have been seen and described only by a few authors.

I immediately examined your plants as accurately as it was possible. In the vegetative parts there is no difference to be found from our *Spirodela (Lemna) polyrrhiza*, for the smallness of the fronds is certainly accidental, or rather is connected with the fertility of the plant. But the ovary, as I have found, is always one-ovuled in the stage of flower, and the fruit, as you state, one-seeded; while the ovary of *L. polyrrhiza* is described decidedly, as being two-ovuled, by the authors who have seen it. I am, therefore, inclined to judge that your plant must be considered as a different species or subspecies of *Spirodela*......The name of *S. monosperma*, I think would perhaps not be quite convenient, because it is very possible that in *S. polyrrhiza*, in the rare cases in which it may be fertile, only one of the two ovules is developed to a seed..........

F. Hegelmaier.

Closter, N. J., Oct. 10th, 1870.

........Dr. Engelmann writes, that both Griffith in India and Schleiden in Germany found this *Lemna (polyrrhiza)* binovulate, but that it matures but one seed; also that he found two ovules in one of our plants. I also have found two ovules in one example.

The *utricle* is nearly round, biconvex, somewhat winged on the margins, abruptly beaked with a short, conic, truncate mouth, which is slightly oblique (recurved), rather small for the size of the frond :—*seed* not quite filling the utricle, broadly oval, horizontal, with a black protruding hilum at the base—I saw no operculum at the apex, but did not look for it; *half anatropous*, composed of three distinct parts, of which only *the central or albuminous portion* is easily separable; this contains the germ protruding from its apex, where it appears to be irregularly about four lobed ; under pressure the germ appears to be slightly curved ;—*the outer coat* is very thick, homogeneous, somewhat spongy;—*the inner coat* is about as thick as the outer one, and appears to be composed of starch ;—the seed is somewhat flattened.—The frond is about 7 (-9) nerved. The young frond issues from the same cleft as the fruit, and both above and over it.

C. F. Austin.

Since the above was in press we have received a note from Dr. Engelmann in which he says : "I was delighted to find in one of my specimens a two-ovuled ovary; no doubt about it. So Hegelmaier's objection to its identity with *S. polyrrhiza* falls to the ground. I had the other day a long letter from him, written before he had received your second envoy. He was then ~~then~~ busy as military surgeon, (He was a medical man before devoting himself to botany.)" Mr. Austin, in a note dated Sept. 9th, writes: "The utricle contains but one ovule in all the fronds I have examined, but I think there is evidently an empty space on the other side of the utricle, fully as large as the space occupied by the single ovule." This is a good example of botanical sagacity. We still think, however, that there is some peculiarity about the plant. The tenuity of the nerves has been referred to. In the full grown plant, now floating before us, there is a strong ridge down the middle of the frond, giving it a different appearance from the common form. However this may be, we believe the engraving from Mr. Austin's drawing, which, through the kindness of a friend, we are enabled to present, is the first accurate delineation of the parts of fructification of this plant which has yet been made.

Explanation of the Plate.—Fig. 1. Frond, showing the nerves at *a a a a a a a;* young frond at *b;* fruit at *c;* with the seed *d;* rootlets at *e.*—Fig. 2. Cross-section of frond showing it to be biconvex, also showing the air-cavities.—Fig. 3. Fruit.—Fig. 4. Seed, showing the raphe at *r*, and the hilum at *h; x* is the apex of the seed, which opens under pressure, when also the albuminous portion issues out through this opening.—Fig. 5. Cross-section of seed, showing its three distinct parts, viz: *a*, album; *s*, starch; and *t*, testa, or outer coat.—Fig. 6. Shows the albumen which has been pressed out of the seed, and the germen, *g*, protruding from the apex.—Fig 7 is the same with the germen separated.

78. **Nuphar luteum**, Smith, Var. **pumilum.**—Common in the Hackensack River, etc., near Closter.

Arabis lævegata, DC.—Common on the Palisades.

Draba verna, L.—I have never seen about Closter, nor on the Palisades north of Guttenberg.

Viola rotundifolia, Mchx.—Not rare on the borders of swamps near Closter. The upright simple scapes produce the perfect flowers which are always abortive; while the prostrate *branching* stems produce fruit in abundance, and are always covered with leaves. C. F. A.

79. **Lythrum lineare**, L.—is this year quite abundant near Little Snake Hill: in prime, Sept. 12th.

Artemisia biennis, Willd.—Seems well established at Stapleton landing, Staten Island. It is a western species, that has lately begun to travel eastward as a weed.

Centaurea Melitensis, L.—I found in a kind of park, on Staten Island: it was obviously only a stray or waif. It has established itself in California, but I never heard of it before on this side of the continent. J. W. Congdon.

80. **Geum strictum**, Ait.; and **Liquidambar Styraciflua**, L.—are abundant on Long Hill, Chatham, N. J. W. H. L.

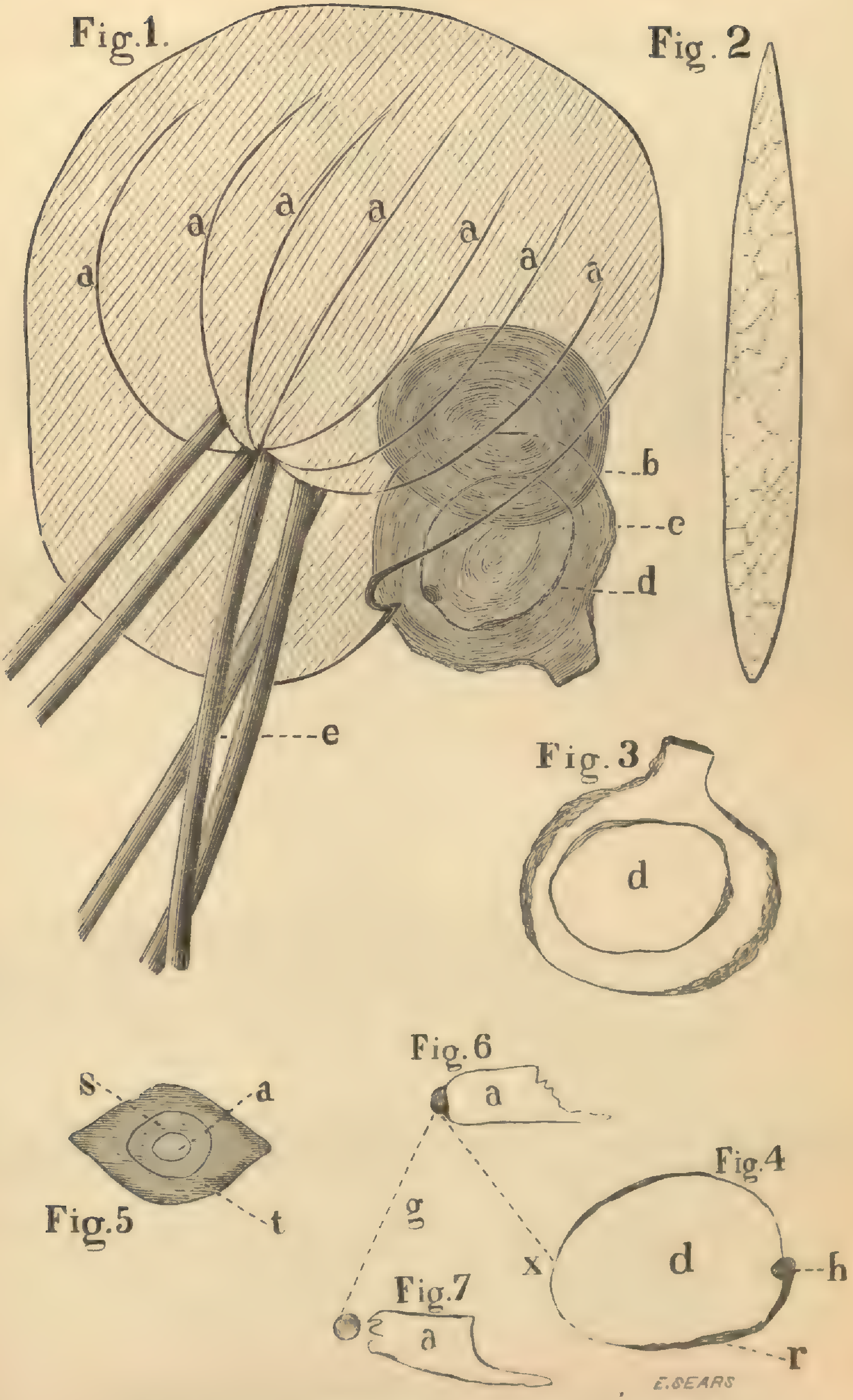


Fig.1.
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E.SEARS

SPIRODELA.—(See page 38.)

81. **Aspidium aculeatum**, Swartz, Var. **Braunii**, Koch.—Last July Rev. J. A. Paine and B. D. Gilbert, found this plant in great abundance at Kasoag, Oswego Co. In the summer of 1869, Mr. J. H. Redfield found it in considerable abundance on the Catskills. It might possibly be found among the Highlands.

Isoetes echinospora, Durieu, Var. **Braunii**, (*fide* Engelmann.)—Messrs. Paine and Gilbert also found this plant, on the north side of Oneida Lake, and near it Mr. P. found,

Myriophyllum tenellum, Bigelow.—I believe the only other station in N. Y. is one mentioned in the State Flora as in Westchester Co. I. H. H.

(The State Flora also cites the northern part of the state. We have found it abundant on the edge of the Sacondaga branch of the Hudson, near Northville, Hamilton Co.; and in a pond, in East Lyme, Connecticut. Eds.)

82. **Helianthus angustifolius**, L.—Grows on Long Island, from Bedford Creek to Centreville, and beyond. At the terminus of Centreville Avenue, in the marsh, it is quite plentiful. (Here may be found also *Utricularia cornuta*, Mchx.) The leaves of the taller plants are mostly alternate, sometimes scarcely any being opposite; those of the shorter ones being mostly opposite. It bears some resemblance to *Rudbeckia hirta.*

Chenopodium glaucum, L.—I have found growing in the Clove Road near Flatbush Jail; in Cooper Avenue, near Ridgewood; at the terminus of the Mill Road, New Lots; and in this city, in 63rd & 64th Sts., near Lexington Ave. M. RUGER.

83. **Cornus stricta**, Lam.—This southern species is enumerated by Rawolle and Pilat in their Catalogue of the plants of Central Park, 1857, which do not, however, all seem to be native or naturalized as *Nyssa uniflora*, Walt., another southern species of the same Order, is also contained in their list. Perhaps some error has arisen, as *Lonicera sempervirens*, Ait. is not mentioned by them, though it is certainly a native of that locality; while their description of *L. grata*, Ait., (which no one else reports from the Island of New York,) corresponds better to the former. In *Torr. Cat.*, 1819, *Cornus stricta*, L'Her., *C. fastigiata*, Mchx., is mentioned as growing in wet woods, but is not quoted in the *State Flora;* but at that early date, we presume, (for we have not the authorities at hand,) the distinctions had not been well drawn. Mr. O. W. Morris sends us this name, *C. stricta*, with no author, as among the plants he has noticed on N. Y. Island, but, as Mr. M.'s recollections go back a great many years, he may have been misled in the same way. At all events, we have seen no specimen, and if any one knows of the plant hereabouts, we shall be thankful to receive enlightenment.

84. **Corrigenda.**—Our last No. was disfigured by several misprints. A semicolon should stand before the letters N. Y. in the §§ Œnothera biennis; Ludwigia alternifolia; Hydrocotyle Americana; and Sanicula Canadensis. In § Archangelica atropurpurea, dele; "north of Morrisania, Ruger." p. 35, substitute a comma for the — in l. 2, and place the — after habit in the 3d line; also dele the comma after "in" in l. 3. In §§ 14 and 72 write Wolffia. § 74 for "strigosus" read "neglectus." § 76, l. 2 for "like" read "take."

ZIZIA, DC.—**Z. integerrima**, DC.; English Neighborhood, on rocky hill, ½ mile south of R. R. station, *Austin;* Palisades, *Allen;* Long Hill, *W. H. L.;* N. Y., *O. W. M.;* banks of Hudson from New York to Sing Sing, *Hall.*

DISCOPLEURA, DC.—**D. capillacea**, DC.; common; N. Y., *O. W. M.*

CICUTA, L.—**C. maculata**, L.; common; N. Y.—**C. bulbifera**, L.; salt marshes, Hoboken, *Torr. Cat.;* Swamps, L. I., *Allen;* common about Closter, *Austin;* rare in the neighborhood of N. Y., *State Flora.*

SIUM, L.—**S. lineare**, Mchx.; common, N. Y.; the plant growing in Secaucus Swamp seems to be a variety with one oil tube in the intervals, and less prominent ridges. Probably other forms of this genus might be found in our district.

CRYPTOTÆNIA, DC.—**C. Canadensis**, DC.; common.

CHÆROPHYLLUM, L.—**C. procumbens**, Lam.; Hoboken hills, *Torr. Cat.;* South Jersey, rare, *Austin.*

OSMORRHIZA, Raf.—**O. longistylis**, DC.; common about Closter, *Austin;* Long Hill, Chatham, N. J., *W. H. L.;* common, *Le Roy, Allen;* N. Y., *O. W. M.;* much less common in southern part of the state than the next, *State Flora;* Throgs Neck, and 3 miles above Newark on Passaic, *Hall.*—**O. brevistylis**, DC.; common; N. Y.

CONIUM, L.—**C. maculatum**, L.; not uncommon; N. Y.

ARALIACEÆ.

ARALIA, Tourn.—**A. spinosa**, L.; Old grounds near 4th Ave., Harlem River; Central Park, *Rawolle & Pilat;* Glen Cove, *Coles.*—**A. racemosa**, L.; in shady woods, Long Island, etc., *Torr. Cat.;* common at Closter, *Austin;* Long Hill, N. J., *W. H. L.;* Glen Cove, *Coles;* Central Park, *Rawolle & Pilat.*—**A. hispida**, Mchx.; Secaucus Swamp, *W. H. L.;* Ridgewood Ave., near Bayside Cemetery, *Ruger.*—**A. nudicaulis**, L.; in rich soil among rocks, *Torr. Cat.;* rather common; Closter, *Austin;* Glen Cove, *Coles.*—**A. trifolia**, Gray; common; N. Y.; Closter, *Austin.*

CORNACEÆ.

CORNUS, Tourn.—**C. Canadensis**, L.; New Durham Swamp, *Torr. Cat., Austin;* N. Y., *O. W. M.;* Long Island, *Ruger,* vid. §§ 21, 30, 70; rare.—**C. florida**, L.; common; N. Y.—**C. circinata**, L'Herb.; in rocky situations, N. J., *Torr. Cat.;* common at Closter, habitat same as Zizia, *Austin;* Central Park, *Rawolle & Pilat.*—**C. sericea**, L.; N. Y., *O. W. M.;* common at Closter, *Austin;* Glen Cove, *Coles;* Brooklyn, *Ruger.*—**C. stolonifera**, Mchx.; common at Closter, *Austin;* Central Park, *Rawolle & Pilat;* Woods near Hoboken, *Torr. Cat.*—**C. paniculata**, L'Her.; common; N. Y.—**C. alternifolia**, L.; common; N. Y., *O. W. M.*

NYSSA, L.—**N. multiflora**, Wang.; common; N. Y., *O. W. M.;* Glen Cove, *Coles.*

CAPRIFOLIACEÆ.

LINNÆA, Gronov.—**L. borealis**, Gronov.; used to be found in the recesses of New Durham swamp, N. J., but not recently; some suppose it to have been placed there by Michaux.

LONICERA, L.—**L. sempervirens**, Ait.; not very rare, though curiously not in *Torr. Cat.;* Staten Island and New Durham swamp, *Austin and others;* N. Y., formerly in Jones' Wood, and waste grounds, now the site of Central Park, where it grew luxuriantly, but is not in the catalogue of the Park by *R. & P.;* Glen Cove, *Coles;* Flatbush, *W. H. L.;* Weehawken, *L. R.*—**L. grata**, Ait.; New Durham swamp, *Torr. Cat.;* Central Park, *Rawolle & Pilat;* Glen Cove, *Coles;* thicket near Flatbush jail, 1868, *Ruger.*—**L. parviflora**, Lam.; Closter etc., common, *Austin;* N.Y., *Torr. Cat.*, *O. W. M.;* Preakness, N. J., *Fischer;* Palisades, Secaucus, etc., not uncommon, *W. H. L.*

DIERVILLA, Tourn.—**D. trifida**, Mœnch; Central Park, *R. & P.;* Bloomingdale, *Torr. Cat.;* Piermont, *Austin;* Preakness, *Fischer;* Long Hill, N. J., *W. H. L.;* Glen Cove, *Coles;* not uncommon.

TRIOSTEUM, L.—**T. perfoliatum**, L.; not uncommon, at least in the region of the Palisades and on Long Island and Staten Island.—**T. angustifolium**, L.; is reported from Glen Cove, L. I. We should like very much to see a specimen.

SAMBUCUS, Tourn.—**S. Canadensis**, L.; common; N. Y.—**S. pubens**. Mchx.; common on the Palisades, *Austin;* N. Y., *O. W. M.*

VIBURNUM, L.—**V. Lentago**, L.; common; N. Y.—**V. prunifolium**, L.; common; N. Y.—**V. nudum**, L.; not uncommon; Closter, *Austin;* Long Island, *W. H. L.;* both varieties are found growing together in Secaucus swamp, N. J.; on Staten Island, Var. **Claytoni**, with a rather long peduncle and very glossy leaves, *W. H. L.;* Var. **cassinoides**, N. Y., *O. W. M.*—**V. dentatum**, L.; common; N. Y.—**V. pubescens**, Pursh; on rocky hills, *Torr. Cat.;* not rare about Closter, *Austin;* Preakness, *Fischer.*—**V. acerifolium**, L.; common; N. Y.—**V. lantanoides**, Mchx.; rocky woods, Manhattanville, etc., *Torr. Cat.;* N. Y., *O. W. M.*

RUBIACEÆ.

GALIUM, L.—**G. aparine**, L.; common; N. Y., *O. W. M.;* very abundant in the woods at the foot of the cliffs, Patterson, *Forman;* very common on Palisades, *Austin.*—**G. Mollugo**, L.; Inwood, N. Y., *W. W. Denslow.*—**G. asprellum**, Mchx.; common; N. Y., *O. W. M.*—**G. trifidum**, L.; common; Closter, *Austin;* New Jersey and Staten Island, *W. H. L.*—**G. triflorum**, Mchx.; common; N. Y.—**G. pilosum**. Gray; common; Closter, *Austin;* Jamaica, *W. H. L.*—**G. circæzans**, Mchx.; common; N. Y., *O. W. M.*—**G. lanceolatum**, Torr.; common at Closter, *Austin;* Long Hill, N. J., *W. H. L.;* woods and rocks, *Torr. Cat.*—**G. verum**, L.; N. Y., *O. W. M.*

DIODIA, L.—**D. teres**, Walt.; common in N. J.; Closter, *Austin;* N. Y., *Le Roy, O. W. M.;* Tottenville, Staten Island, *W. H. L.*

CEPHALANTHUS, L.—**C. occidentalis**, L.; common; Glen Cove, *Coles;* N. Y., *O. W. M.*

MITCHELLA, L.—**M. repens**, L.; common every where in woods; N. Y.

OLDENLANDIA, Plumier, L.—**O. glomerata**, Mchx.; N. Y., *O. W. M.;* Bloomingdale and Brooklyn, *State Flora;* Closter, not rare, *Austin.*

HOUSTONIA, L.—**H. purpurea**, L.; New Jersey, *Torr. Cat.;* **Var. longifolia**, abundant on Long Island, near Jamaica, Hempstead etc.—**H. cærulea**, L.; common along Passaic, but does not occur near Closter, *Austin;* Staten Island.

VALERIANACEÆ.

VALERIANA, Tourn.—**V. officinalis**, L.; vid. § 52.

FEDIA, Gærtn.—**F. olitoria**, Vahl.; cultivated grounds, Inwood, N. Y., *W. W. Denslow.*—*F. radiata,* Michx.; fields, *Torr. Cat.;* is probably an error for the former.

DIPSACEÆ.

DIPSACUS, Tourn.—**D. sylvestris**, Mill.; not uncommon; Glen Cove, *Coles.*—**D. Fullonum**, L.; Orange Co., rare, *Austin.*

85. **Spirodela.**—In reply to a recent communication of specimens, we have received the following letter from Dr. Engelmann. Although he thinks the publication unnecessary, we yet venture to print it, as he differs from Mr. Austin in relation to the endopleura, and, of course, the subsequent terms of the series. Mr. Austin notified us, that he had not had access to his materials for comparison with other species.

St. Louis, Nov. 13, 1870.

Dear Sir: Only to day I finished the examination of your interesting Lemna. As Prof. Hegelmeier, the accurate monographer of the family, will no doubt give us a full description and figure of this plant, from your specimens, I think it superfluous to try to anticipate him in a much less complete and satisfactory manner, but I may say that,

The fertile fronds are unusually small, only 2½–3¼ mm. in the longer diameter, mostly with 5–6 ribs, or at most 7; and with 3—5 or sometimes 6 roots. *Foliaceous organs;* spiral vessels, (even in the roots,) pigment cells, and both forms of crystals, acicular and glomerate, as in the common form of *polyrrhiza;* stomata smaller, only 0.14—0.16 mm. in larger diameter, (whereas in that they are 0.20—0.25 mm. long.)—*Spathe* a complete sac as in *Lemna trisulca, gibba,* and *minor;* not a mere circular bract, as in *L. paucicostata* and others.—*Anthers,* ⅓ mm. in transverse diameter, larger than those of other species, different from those of all Lemnæ, (and thus confirming the genus Spirodela,) [illegible] longitudinal and not transverse dehiscence, as, in fact, Hegelmeier already surmises from Griffith's coarse but reliable figures of the East Indian plant. *Pollen grains* spirnulose, as in the whole family, as often elliptical as globose, 0.018—0.023 mm. in the different diameters and sizes; smaller than those of our *Lemna paucicostata,* (0.023—0.027 mm.) —*Pistil,* as well as anthers and utricle, strongly dotted with purple, in alcohol, brown,) subcuticular cells—*ovule,* hemitropous; horizontal, as in *L. minor;* and, in the 10 or 12 flowers now examined, *always single;* spiral vessels in funiculus, which only occurs again in *L. gibba,* in this family; exostome, almost closed, while in all others it is open or even (in *L. paucicostata* and *perpusilla,*) incomplete, the endostome strongly protruding.—*Seed* horizontal and slightly compressed, the dark spot of the chalaza distinctly visible, even through the utricle, and, as in all 1-ovuled species of Lemna, directed backward to the base of the frond; raphe distinct, no spiral vessels observed in it; seed (apparently—the specimens examined were not completely matured—) smooth as in Wolffia, not ribbed as in Lemna; cellular spongy testa very thick; operculum distinct; endopleura, as usual in Lemnæ, dark brown, thin; endosperm, (albumen,) considerable.—*Embryo,* cylindric almost as long as the seed, as usual in the family, [what Austin calls albumen "a," his "s" is the starchy albumen, what he calls embryo, is the plumule.]

I take it to be a one ovuled small form of S. polyrrhiza.

In all the specimens examined, I find the singular circumstance of the first (anterior) stamen only being developed and protruding, (but never as far as in other species,) and the second or posterior one and the pistil being enclosed. Is this owing to the hour of the day when collected? It would be worth while to find out, whether in Lemna the first stamen may be developed in the morning, and the second at noon or in the afternoon.

[illegible], 10.
infra,

Yours truly, G. ENGELMANN.

86. **Imitation.**—Darwin, Wallace, and others, have pointed out numerous cases of imitation in nature for purposes of protection. An instance of imitation for offence recently fell under my observation. My attention was attracted by a wasp suspended from a panicle of Solidago. I at first supposed that the flower had in some way entrapped him, but, on closer inspection, found that he was in the fangs of a yellow spider of precisely the color of the blossoms.

W. H. L.

87. **The Club**—meets at the Herbarium in Columbia College, 49th Street, the last Tuesday in every month. Botanists are invited to attend.

88. **Exchanges.**—Among our correspondents are a number who wish to make exchanges. We propose occasionally to give a few lines to announcements of this sort.—Dr. Henri Van Heurck, Antwerp, Belgium; Phænogams.—S. B. Mead, Augusta, Ill.; the rarer plants in Gray, particularly for the novelties about New York. We have a list of his desiderata, which we shall be pleased to show to those of the Club desiring it.

89. **Migrations.**—Rev. D. R. Shoop, of Bellevue, Michigan, who is pretty familiar with the general run of plants in the western part of the region covered by Gray's Manual, and has botanized a good deal in Central and West New York, writes me that, "*Leucanthemum vulgare,* Lam., is now established in portions of every state east of the Mississippi, except, it may be, Wisconsin. It has emigrated westward from all the seaboard states. I found it four miles

south of Ann Arbor, Mich., in 1863. I saw it also this summer in the N. W. corner of Livingston Co. in abundance in three or four fields, and some weeks ago I found a few specimens about five miles north of Bellevue. *Ranunculus acris*, L., I saw also this summer from 10 to 16 miles north of here, the only place where I have ever seen it established west of New York. In the way of immigrations, *Hibiscus militaris*, Cav., and *Dysodia chrysanthemoides*, Lag., have established themselves at Joliet, Ill., and *Artemisia biennis*, Willd., now abounds in many places in this state. You may look for the latter in New York in a few years. [Vid. § 79.] Where I have seen it here, it is evident that it is not indigenous, but an emigrant from the west." Sept. 19th, I. H. H.

90. Hedera Helix, L.—Does any one know of this plant spreading in our district?

91. Ascyrum Crux-Andreæ, L.—1868, Babylon, L. I., near the mill pond, east of the village, along with

Polygala lutea, L.—and also south of the road, in front of Higbie's tavern,

Sesuvium Portulacastrum, L., Var. **pentandrum**, July 21, 1870.

Blitum Bonus-Henricus, Reichenbach,—same date, East Hampton, L. I., south side of Hook Pond, to the right of the bridge, going from the village to the sea shore, with *Spergularia media*, Presl.

Drosera filiformis, Raf.—road side, about ¾ mile east of Sag Harbor, on the way to East Hampton.

Nabalus racemosus, Hook.—Sept. 29, 1870, Scarsdale, Westchester Co., on the farm of Mr. Charles Butler.

Perhaps these stations are mostly too remote. J. S. Merriam.

92. Podophyllum peltatum, L.—I had never seen in Westchester Co., until a few plants were introduced some years ago by the importation of fruit trees from Central N. Y. The plants grow vigorously, but, though they flower, they have as yet produced no fruit. G. J. Fischer, M. D.

[Yet they ripen fruit in the neighboring parts of Connecticut, e. g. in Greenwich, which is within our limits. *Eds.*]

93. Archemora rigida, DC.—Staten Island, marshes near Linden Park station, the only locality known in this part of the state, *W. H. L.*—**Æthusa Cynapium**, L.; Flushing, *T. F. A.*

94. Houstonia cærulea, L.—This plant is only reported from the banks of the Passaic and from Staten Island, but we have a strong impression that it occurs on New York Island, and in other localities in our district. Can any one give us certainty on this point?

95. Compositæ.—We are deficient in data respecting several genera of this Order, particularly the Asters, and more especially, No's 4, 15, 16, 19—24 of Gray's Manual, 5th edition. We hope for assistance

96. **The Club.**—During the summer of 1866, two enthusiasts frequently knocked at the door of Dr. Torrey's Herbarium in Columbia College. They were always greeted with two hands, and derived great pleasure in discussing some new plant found in the vicinity, or in comparing curious varieties and sports of familiar species. They had heard vague rumors of the existence of other collectors, rumors confirmed by the mysterious disappearence of a secluded patch of *Cardamine pratensis*, which had been left a few days to perfect. The desire was frequently expressed to try to assemble these workers; so the effort was made. The meetings gradually increased in size and interest, until it became evident that we possessed a working force. The Torrey semi-centennial of Dec. 20th, 1867, still further united the members, and the present organization was effected.

The following is a list of the officers and members of the club. As the association is rather informal, and somewhat fluctuating, we hope that errors and deficiencies will be pardoned. We have lost by death one member, W. W. Denslow, one of the earliest, most enthusiastic, and, with the disadvantage of feeble health, one of the most indefatigable. No one had studied so carefully the plants on the northern end of this island: unfortunately we have but a partial report of his observations.

Officers.

John Torrey, M. D., LL. D., ... *Chairman.*
P. V. Le Roy, ... *Secretary.* | T. F. Allen, M. D., . . *Curator.*
W. H. Leggett, ... *Editor.*

Members.

- Allen, T. F.
- Austin, C. F.
- Bower, Wm.
- Buchanan, I.
- Bumstead, F. J.
- Day, W. De F.
- Darby, John.
- Denslow, Herbert.
- Eaton, D. C.
- Fischer, W. L.
- Forman, W. H.
- Gerard, Chas. B.
- Gross, O. R.
- Hall, I. H.
- Hogg, Jas.
- Hyatt, Jas.
- Leggett, Wm. H.
- Le Roy, P. V.
- Merriam, Jas. S.
- Morris, O. W.
- Perry, O. H.
- Pollard, F. A.
- Redfield, J. H.
- Rockwith, F. A.
- Ruger, M.
- Torrey, John.
- Thurber, Geo.
- Ward, Jas. W.
- Wilbur, G. M.

97. **An Autumn Ramble.**—On the 15th of October last, almost a summer afternoon, in company with Paul, aged seven, a botanist of some experience and expertness, though, it must be confessed, rather illiterate, we strolled towards the shore from Linden Park station, on the Staten Island R. R.

The first object that attracted us was a Pin Oak, *Quercus palustris*, Du Roy. We found the small, dark colored acorns just ready to drop out of the shallow cups, which, in this example, were contracted into the scaly base mentioned by Gray as occasional. From the apex of the acorn radiate numerous light colored lines, similar to those described in the State Flora as marking the gland of *Q. ilicifolia*, but in our subject quite distinct ; we have before noticed these marks in the Pin Oak fruit, but do not remember to have seen them mentioned in the books; nor does Torrey's "light brown" well describe our acorns, which are decidedly blackish ; in shape they are flattened globose.

Towering over the surrounding brush were seen the dry candelabrum like arms of *Lilium superbum*, L., each supporting its oblong pod. These arms form a considerable angle with the main stalk, and yet the pods are all vertical : this seems the more extraordinary as the plant bears nodding flowers. Upon examining one of these branches, or, rather, long peduncles, we find that, about an inch below the pod, it has taken an upward turn, so as to give the fruit its upright position; and, still lower down, are evident traces of the bend of the flowering season in the opposite direction ; so that the end of the stalk must have moved through nearly 180 degrees,in the interval between the opening of the flowers and maturing of the fruit. The pods are now open at the top, the cells being completely separated for about one third of the way down, (*septicidal*,) and being, likewise, split down the back, (*loculicidal*); but these latter openings, which alone penetrate the interior of the cells, are guarded by a kind of lace work, sufficiently fine to prevent the seeds from escaping in that way, but affording free access to the wind. The effect of this splitting of the pod is to make the opening at the top wider. Each of the three cells is filled with thin flat seed, wedge shaped on the inner side, and rounded on the other, like the sector of a circle ; the larger part of each consists of a broad wing. Their color is pretty and peculiar, being very nearly that of gold lacquer. On trying to empty them out by inverting the pod, we found, that they choked up the outlet, and did not readily escape that way; but when the pod was held erect, and sprung, as it might be by the wind, they flew out of the top freely. The tall stalks of this lily offer a prominent object for the winds of autumn to shake, and thus disperse the seed, the broad grated openings in the side and the light wings favoring. We counted about 250 seed in one pod. We did not think to count the capsules on a plant, but there were probably 8 or 9, (Dr. Gray says there are sometimes 40 blossoms.) We have occasionally for years taken this same walk, and yet do not observe any increase in the quite limited number of lilies. Are we to suppose that the ground is full of young bulbs, ready to grow when their competitors leave them an opening ; or that the great adaptation for dispersion shows that the conditions of germination are far to seek?

Many other objects, some of special interest, attracted us, but we have no more space at present.

We missed the cars on our return, and had to walk some three miles to the steamboat ; but my young friend did not seem to find it wearisome, while listening to the story of the sturdy fellow of yore who sought botanical treasures in the garden of the Hesperides—some Staten Island with golden seeded lily pods.

98. **Lespedeza procumbens**, Mchx.—Staten Island near Stapleton, *Forman.*—**Diodia teres**, Walt.; East New York, *Ruger.*

99. **Corrigenda.**—p. 40, in § Aralia hispida, read Ridgewood aqueduct;—p. 42, 9th line from bottom, read Lemnæ; 5th line from bottom, read spinulose; 3d line from bottom, read *paucicostata;*—p. 43, 2nd line from top for "fasciculas" read funiculus; ll. 14 and 15 substitute semicolons for the commas after "a" and "albumen";—p. 44, the locality assigned to Blitum should have been given to Sesuvium, and that of Blitum should be, "Roadside in East Hampton village."—§ 93, read Æthusa Cynapium.—§ 94, read certainty.

COMPOSITÆ.

VERNONIA, Schreb.—**V. Noveboracensis**, Willd.; common every where; N. Y.

LIATRIS, Schreb.—**L. scariosa**, Willd.; swamps, N. J., *Eddy in Torr. Cat.;* Suffolk Co., L. I., *State Flora, Allen;* banks of Harlem River, near Sixth Av., with *Solidago rigida & S. speciosa.*—**L. spicata**, Willd.; Staten Island, *State Flora;* ½ mile W. of Norwood, N. J., *Austin;* Morris Co., N. J., *W. H. L.*

EUPATORIUM, Tourn.—**E. purpureum**, L.; common in low or wet grounds; N. Y.—**E. hyssopifolium**, L.; Long Branch, *Torr. Cat.*, and Red Bank, N. J., *W. H. L.;* Queens Co., *Willis in State Flora;* Glen Cove, *Coles;* Liberty Av. near Jamaica, *Ruger;* and Suffolk Co., L. I., *Allen.*—**E. leucolepis**, Torr. & Gr.; not reported nearer than Sag Harbor, *State Flora.*—**E. album**, L.; South River, N. J., *Bumstead & Leggett;* Edward's Pond, Suffolk Co., L. I., *W. H. L.*—**E. teucrifolium**, Willd.; common everywhere else, but not reported from Westchester Co.; varies much, sometimes with a large corymb.—**E. rotundifolium**, L.; Queens Co., L. I., *Willis in State Flora;* Tottenville &c., Staten Island, *W. H. L.;* South Amboy, *Allen.*—**E. pubescens**, Muhl.; Rossville &c., Staten Island; perhaps only a form of the preceding, if these species are distinct; the mature flowers were not obtained, but in the bud there were about seven florets, *W. H. L.*—**E. sessilifolium**, L.; Palisades, *Austin;* Glen Cove, *Coles;* not seen on this end of L. I., *Ruger;* High Bridge, *Allen;* Central Park, *R. & P.;* Kingsbridge hills, with a short but decided petiole; Staten Island, *W. H. L.*—**E. resinosum**, Torr.; Queens Co., L. I., *Willis in State Flora.*—**E. perfoliatum**, L.; every where common; N. Y.—**E. ageratoides**, L.; common; N. Y.—**E. aromaticum**, L.; rocky woods, N. J., *Torr. Cat.*; on Long Island, about a mile from South Ferry, *State Flora;* near Richmond Hill, South Side R. R., *Ruger;* Hempstead, *Allen;* Staten Island, New Dorp, *Allen.*

MIKANIA, Willd.—**M. scandens**, L.; common; N. Y.

TUSSILAGO, L.—**T. Farfara**, L.; Carmansville, but station probably destroyed, *W. H. L.;* N. Y., *O. W. M.*

SERICOCARPUS, Nees.—**S. solidagineus**, Nees; Woods and copses, *Torr. Cat.;* Closter, common, *Austin;* Suffolk Co., L. I., *Allen.*—**S. conyzoides**, Nees; common; N. Y.

ASTER, L.—**A. corymbosus**, Ait.; very common; N. Y.—**A. macrophyllus**, L.; Fordham, *W. H. L.;* Bloomingdale, *Torr. Cat.;* N. Y., *O. W. M.;* Closter, common, *Austin;* Chatham, N. J., Astoria, *W. H. L.*—**A. spectabilis**, Ait.; Queens Co., *Willis in State Flora;* Islip, *Allen & Leggett;* South River, N. J., *Bumstead & Leggett;* N. Y., *O. W. M.*—**A. concolor**, L.; Queens Co., *Willis in State Flora;* Centreville and beyond, L. I., *Ruger;* N. Y., *O. W. M.;* South Amboy.—**A. patens**, Ait.; common; N. Y.: Var. **phlogifolius**; Tarrytown, *Hall;* Weehawken, and Long Hill, N. J., Staten Island, *W. H. L.*—**A. lævis**, L.; common; N. Y.: Var. **lævigatus**; near Greenwood Cemetery, *W. H. L.;* Glen Cove, *Coles:* Var. **cyaneus**; N. Y.; Coney Island R. R., *W. H L.;* Glen Cove, *Coles.*—**A. undulatus**, L.; Closter, *Austin;* Summit, N. J., *W. H. L.;* N. Y., *O. W. M.;* Staten Island, Jamaica, and Sand s Point, L. I., *W. H. L.;* South River, N. J., *Bumstead.*—**A. cordifolius**, L.; very common; N. Y.—**A. sagittifolius**, Willd.; Snake Hill, *Allen;* Summit, N. J., Staten Island, *W. H. L.*—**A. ericoides**, L.; very common; N. Y.—**A. multiflorus**, Ait.; Harlem River, &c.; Central Park, *R. & P.;* Glen Cove, *Coles;* East New York, Gravesend, &c., Communipaw, *W. H. L.*—**A. dumosus**, L.; Hempstead, *Eaton & Bumstead;* Rockaway, L. I., and Staten Island, *W. H. L.;* N. Y., *O. W. M.;* Closter, *Austin.*—**A. Tradescanti**, L.; very common; N. Y.—**A. miser**, L., Ait.; very common; N. Y.—**A. simplex**, Willd.; N. Y., *O. W. M.;* Passaic, *Allen;* Closter, *Austin;* Hart's Corners, Westchester Co., and Hempstead, L. I., *Eaton & Bumstead.*—**A. tenuifolius**, L.; Closter, *Austin;* Gravesend and Astoria, L. I., *W. H. L.*—**A. carneus**, Nees, ?; near Newark Bay, Pamrapo, *W. H. L.*—**A. longifolius**, Lam.; common; N. Y., *O. W. M.;* not reported from Westchester Co.—**A. puniceus**, L.; common; N. Y.—**A. Novæ-Angliæ**, L.; common along fences and road sides; N. Y., *O. W. M.*—**A. acuminatus**, Mchx.; ½ mile S. S. W. of Closter station, N. R. of N. J., *Austin;* without locality, *Allen.*—**A. nemoralis**, Ait.; New Durham swamp, *Torr. Cat.;* Staten Island, *Austin;* N. Y., *O. W. M.*—**A. flexuosus**, Nutt.; common in salt marshes; N. Y., *O. W. M.*—**A. linifolius**, L.; common in salt marshes; N. Y.

ERIGERON, L.—**E. Canadense**, L.; too common; N. Y.—**E. bellidifolium**, Muhl.; common; N. Y.—**E. Philadelphicum**, L.; in woods and old fields, *Torr. Cat.*, [but very rare now]; *Le Roy;* N. Y., *O. W. M.;* Central Park, *R. & P.;* Glen Cove, *Coles;* not about Closter, never saw it E. of Susquehannah valley, *Austin.*—**E. annuum**, Pers.; very common; N. Y.—**E. strigosum**, Muhl.; very common; N. Y.

DIPLOPAPPUS, Cas.—**D. linariifolius**, Hook.; common; N. Y., *O. W. M.*—**D. umbellatus**, Torr. & Gr.; Closter, *Austin;* New Durham swamp, &c.; Glen Cove, *Coles;* rather common.—**D. cornifolius**, Darl.; Tappan, *Austin;* Astoria, L. I., Chatham, N. J., *W. H. L.*

BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. II.] **New-York, January, 1871.** **[No. 1.**

1. **The Bulletin.**—The present number commences the second year of our publication. The interest shown in it augurs well for the future. Thanks to its friends, (some warm ones outside of the club,) it will not fall very far short of paying expenses. When there is a permanent fund of from three to five thousand dollars established for it, as we count there will be some day, it will be ensured a permanency, and the size may be doubled at half the cost to subscribers. Meanwhile, it will be continued at the present rates. The subscription for 1871 is now due.

2. **Proceedings of the American Academy of Arts and Sciences for June, 1870.** Dr. Gray's Botanical Contributions contain much to interest those who study the flora of the region embraced in his Manual.

The first paper is a "Reconstruction of the Order Diapensiaceæ;" in which he groups together, *Pyxidanthera*, Michx.; *Diapensia*, L.; *Shortia*, Torr. & Gray; and *Galax*, L.

The second is a "Revision of the North American Polemoniaceæ." The name **Phlox ovata**, L., is resumed instead of *P. Carolina*, L.; and var. *nitida*, Benth., (*P. nitida*, Pursh) is transferred to **P. glaberrima**, L. *P. procumbens*, of the Manual, becomes **P. amoena**, Sims. **P. Stellaria**, Gray, is a new species "found only by the late Dr. Short, May 1st, 1829, on the cliffs of Kentucky River."

The third paper is a collection of "Miscellanea." Dr. Gray concludes that the American forms heretofore ranked by him under *Lycopus Europæus*, L., are distinct; hence the *var.* becomes the species **L. sessilifolius**, Gray; the var. *integrifolius*, **L. rubellus**, Mœnch; the var., **L. sinuatus**, Ell. **L. Europæus**, L., has been gathered near Norfolk, Va., and Philadelphia.

Viola renifolia, Gray, a new species, found by Mr. Paine in Oneida Co., and by others in other northern localities, grows "in company with *V. blanda*, which it closely resembles as to the flower, but the leaves are more like those of *V. palustris*; yet they are more strictly uniform, and are conspicuously beset with pale, soft and tender, lax hairs."

Desmodium Illinoiense, Gray, between *D. rigidum*, and *D. canescens*; and *Polygonum Hartwrightii*, Gray, "sedgy bogs, New York, from Herkimer to Yates Co., and Michigan," liable to be mistaken for *P. amphibium*, or *P. Careyi*; are new species.

We presume that students of the Manual will soon be supplied with the requisite particulars about these interesting changes and discoveries.

3. **Triosteum angustifolium**, L.—Mr. I. Coles, of Glen Cove, has brought us specimens of this species from that vicinity. We understand that some years ago Mr. Coles sent a specimen to the State Cabinet, where its identity was recognized by Dr. Beck. Bucks Co., Pa., has heretofore been supposed to be the northern limit of the species. Dr. Torrey has not included it in his list of plants to be looked for, appended to the State Flora. This discovery, and that of *Helianthus angustifolius* in the same district, (one of Dr. Torrey's *petenda,*) with those of *Eclipta procumbens* and *Polymnia Uvedalia* at Weehawken, and *Nabalus racemosus* in Westchester Co., and same others, give a fresh interest to our local Flora, and should arouse our collectors to renewed activity.

4. **Cornus stricta**, Lam.—The specimen with this label in the Herbarium of the Central Park, vid. § 83, Vol. I., turns out to be *C. alternifolia*, L.

5. **Winter Blossoms.**—On the 19th of Dec. the following plants were in bloom on Moore Farm, Newtown, L. I.: *Malva rotundifolia*, L., *Linaria vulgaris*, Mill., and the common Dandelion, *Taraxacum Dens-leonis*, Desf. The Linaria held out until the 26th. O. H. Perry.

Dandelions were seen by Mr. Pollard in bloom on Christmas day, in Central Park, and by another friend in another locality, Jan. 18th.

Mr. Perry also gathered at Newtown, on the 8th of January, the beginning of the cold snap, the blossoms of the Cabbage, Shepherd's-purse, and Chick-weed. *Brassica campestris*, L., *Capsella Bursa-pastoris*, Mœnch., *Stellaria media*, Smith. It will be noticed that all these late bloomers are foreigners. The ovules in the last three cases were apparently fertilized. Mr. Ruger writes us that roses were blooming in St. Paul's Church yard, December 14th.

6. I have to report the following additional localities:
Silene inflata, Smith; 102nd St. between 3rd and 4th Avenue.
Geranium pusillum, L.; court yard in front of No. 229 E. 10th St., in flower as late as Dec. 4th.
Lathyrus maritimus, Bigelow; Sea-bright, N. J. M. Ruger.

7. In June last I found by the roadside, in a district burned over five years ago, a *Tragopogon*, resembling the illustration of *T. undulatus*, in Loudon's "Encyclopædia of Plants," stated to be a native of the Crimea. D. Wilson, Glens Falls.

8. **Aster longifolius**, Lam.—You will find reported in Paine's Catalogue, p 40, as found by me in Westchester Co., some years since. I subsequently found it in other localities near Tarrytown. The same remark applies to **Eupatorium teucrifolium**, Willd. See Paine's Cat. p. 38. See also same for authority for inserting **E. hyssopifolium**, L., in a place up the River, though the actual locality was in the steep ascent of the river side of Hook (or Bull?) Mountain, above Nyack. *E. teucrifolium* grows there also. **Tussilago Farfara**, L I have occasionally seen in Connecticut, near the Westchester Co. boundary; and have a very strong impression that I have met with it at Portchester, and New Rochelle, and perhaps at Eastchester. I have certainly seen it at Riverhead, L. I. I. H. Hall.

SOLIDAGO, L.—**S. squarrosa**, Muhl.; Palisades, common, *Austin*.—**S. bicolor**, L.; every where common: Var. **concolor**; from Jamaica, sparingly, east to Riverhead; L. I., also Plainfield, N. J., *Hall*.—**S. latifolia**, L.; Closter, common, *Austin*; New Durham swamp, *W. H. L.*; probably not uncommon elsewhere, though not reported.—**S. cæsia**, L.; every where common; N. Y.—**S. puberula**, Nutt.; "In sandy fields, New Jersey, near Amboy, *(Nuttall.)*" *Torr. Cat.*; Chatham, N. J., *W. H. L.*; Hempstead, *Bumstead*; Rockaway, L. I., *W. H. L.*; Tarrytown, *Hall*; said to have been found on N. Y. Island, if so, a specimen should be in the Local Herbarium.—**S. speciosa**, Nutt.; Harlem River, near Sixth Av.; Chatham, N. J., *W. H. L.*—**S. rigida**, L.; "On rocky hills, N. J.," *Torr. Cat.*; Palisades, rare, *Austin*; Harlem River with **S. speciosa**; Yonkers, *J. H. Pooley, Jr.*; Central Park, *R. & P.*—**S. sempervirens**, L.; common near salt water; N. Y.—**S. neglecta**, *Torr. & Gray*; not uncommon; N. Y., *O. W. M.*; Rockaway, Astoria, L. I.; Staten Island; Hackensack swamps, South River, N. J.; varies greatly, but well characterized; the upper leaves are sometimes remarkably broad and entire, and in well developed and mature plants the panicle is not narrow, but quite broad, and somewhat corymbose; the stem is either dark red, or straw colored.—**S. patula**, Muhl.; not uncommon; Astoria, *Bumstead*; Carlstadt, Chatham, New Durham, N. J.; Yonkers, &c., Westchester Co., *W. H. L.*, *Hall*; N. Y., *O. W. M.*—**S. arguta**, Ait.; common: Var. **juncea**; Long Island, Staten Island, perhaps as common as the typical form.—**S. Muhlenbergii**, Torr. & Gray; Hart's Corners, Westchester Co., *Bumstead*; Chatham and New Providence, N. J., *W. H. L.*—**S. linoides**, Solander; Closter, N. J., *Austin*.—**S. altissima**, L.; very common; N. Y.—**S. ulmifolia**, Muhl.; Closter, *Austin*; Chatham, N. J., *W. H. L.*; N. Y., *O. W. M.*—**S. odora**, Ait.; common; N. Y.—**S. nemoralis**, Ait.; very common; N. Y.—**S. Canadensis**, L.; common; N. Y.: Var. **procera**; Hackensack swamps, *Allen*.—**S. serotina**, Ait.; common; N. Y., *O. W. M.*—**S. gigantea**, Ait.; common; N. Y.—**S. lanceolata**, L.; very common; N. Y.—**S. tenuifolia**, Pursh; Jamaica, and eastward, L. I.; New Durham swamp, *Austin*.

CHRYSOPSIS, Nutt.—**C. falcata**, Ell.; Suffolk Co., L. I., and Pine-barrens, N. J., not reported, but probably to be found, within our limits.—**C. Mariana**, Nutt.; New York Island, *State Flora*; Staten Island, *W. H. L*; Long Island.

INULA, L.—**I. Helenium**, L.; common; N. Y.; not common near Closter, N. J., *Austin*; rare on this part of Long Island, *Ruger*; Glen Cove, *Coles*.

PLUCHEA, Cass.—**P. camphorata**, DC.; common in salt marshes, N. Y.

BACCHARIS, L.—**B. halimifolia**, L.; common near salt water; N. Y., *W. H. L.*; no doubt grows on Staten Island, and in Westchester Co., but none reported from those districts.

POLYMNIA, L.—**P. Uvedalia**, L.; foot of cliffs near Weehawken Ferry, *Allen*.

IVA, L.—**I. frutescens**, L.; common near salt water; N. Y.

AMBROSIA, Tourn.—**A. trifida**, L.; common; N. Y., *O. W. M.*—**A. artemisiæfolia**, L.; very common; N. Y.

XANTHIUM, Tourn.—**X. strumarium**, L.; common; N. Y.: Var. **echinatum**; common near salt water. At Spuyten Duyvil were found the typical form, the variety, and an intermediate state; the variety apparently the first to mature, and the typical form the latest.—**X. spinosum**, L.; Staten Island; Hoboken; Glen Cove, *Coles;* N. Y., *O. W. M.*; Brooklyn, *Ruger.*

ECLIPTA, L.—**E. procumbens**, Michx.: Var. **brachypoda**; Red Bank, N. J., *Allen;* about a mile above the Weehawken Ferry, at the foot of the cliffs, in wet places, *W. H. L.*

HELIOPSIS, Pers.—**H. lævis**, Pers.; Closter, *Austin;* Central Park, *R. & P.:* Var. **scabra**; South Amboy, *Allen.*

RUDBECKIA, L.—**R. laciniata**, L.; common; N. Y.; not common on Long Island, *Ruger.*—**R. hirta**; common; not however, reported from New York Island, or Closter.

HELIANTHUS, L.—**H. annuus**, L.; waste grounds; Coney Island, *W. H. L.;* N. Y., *O. W. M.*—**H. angustifolius**, L.; Centreville, L. I., *Ruger*, vid. § 82, Vol. I.—**H. giganteus**, L.; common; N. Y.: Var. **ambiguus**; near Brooklyn, *State Flora.*—**H. strumosus**, L.; Chatham, N. J., *W. H. L.;* Closter, *Austin.*—**H. divaricatus**, L.; common; N. Y., *O. W. M.*—**H. decapetalus**, L.; Weehawken, New Durham, Closter, N. J.; N. Y.; probably common but not reported: Var. **frondosus**; rocky hills, *Torr. Cat.*—**H. tuberosus**, L.; Woodside, Bergen Point, N. J.; Staten Island, *W. H. L.;* N. Y., *O. W. M.;* Jamaica, *W. H. L.*

ACTINOMERIS, Nutt.—**A. squarrosa**, Nutt.; "In meadows, New Jersey, perennial, Aug., yellow." *Torr. Cat.;* an error?

CORREOPSIS, L.—**C. tinctoria**, Nutt.; N. Y., *O. W. M.*—**C. trichosperma**, Mchx.; common in swamps; New Jersey; Long Island.

BIDENS, L.—**B. frondosa**, L.; common; N. Y.; heads radiate, Chatham, N. J., *W. H. L.*—**B. connata**, Muhl.; common; N. Y., *O. W. M.*—**B. cernua**, L.; Woodside, N. J., *W. H. L.;* "Low grounds and ditches," *Torr. Cat.;* not rare in New Jersey, *State Flora; Le Roy.*—**B. chrysanthemoides**, Michx.; common; N. Y.—**B. bipinnata**, L.; very common; N. Y.

HELENIUM, L.—**H. autumnale**, L.; common; New Jersey; Westchester County; Long Island, *Ruger.*

GALINSOGA, Ruiz & Pav.—**G. parviflora**, Cav.; streets of N Y.; Staten Island; Bergen Point; Astoria, South Brooklyn, *Ruger.*

MARUTA, Cass.—**M. cotula**, DC.; too common; N. Y.

Terms—*One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3 E. 33d St.—Editor 224 E. 10th St.

ANTHEMIS, L.—**A. arvensis**, L.; quite common; N. Y.

ACHILLEA, L.—**A. Millefolium**, L.; very common; N. Y.; the rose-colored var. in Westchester County, *Le Roy, Pooley.*—**A. Ptarmica**, L.; "Swamps, New York," *Eddy in Torr. Cat.*, but not since reported.

LEUCANTHEMUM, Tourn.—**L. vulgare**, Lam.; too common; N. Y.—**L. Parthenium**, Godron; near Woodside and Centreville, L. I., *Ruger;* Central Park, N. Y., *R. & P.;* N. J., *Austin.*

TANACETUM, L.—**T. vulgare**, L.; common; N. Y.: Var. **crispum**; not uncommon; Ridgewood aqueduct, beyond Centreville, *Ruger.*

ARTEMISIA, L.—**A. caudata**, Michx.; Long Island, *State Flora;* Sandy Hook, N. J., *Ruger.*—**A. vulgaris**, L.; Rye, near R. R. depot, *Ruger;* Glen Cove, *Coles*—**A. biennis**, Willd.; Stapleton, Staten Island, *Congdon*, vid. § 79, Vol. I.—**A. Absinthium**, L.; N. Y., *O. W. M.*

GNAPHALIUM, L.—**G. decurrens**, Ives; Chatham, N. J., *W. H. L.;* Glen Cove, *Coles.*—**G. polycephalum**, Michx.; quite common we believe, but have few memoranda about it; *Torr. Cat.;* Chatham, N. J., *W. H. L.;* Central Park, *R. & P.;* pretty common on L. I., *Ruger;* Glen Cove, *Coles.*—**G. uligininosum**, L.; common; N. Y.—**G. purpureum**, L.; Staten Island, Chatham, N. J., *W. H. L.;* Long Branch, *Ruger; Torr. Cat.; Le Roy.*

ANTENNARIA, Gærtn.—**A. margaritacea**, R. Brown; common; N. Y., *O. W. M.*—**A. plantaginifolia**, Hook.; common; N. Y.

FILAGO, Tourn.—**F. Germanica**, L.; Staten Island, *State Flora.*

ERECHTHITES, Raf.—**E. hieracifolia**, Raf.; very common; N. Y.

SENECIO, L.—**S. vulgaris**, L.; old grounds; N. Y.; Fort Lee, *W. H. L.;* Snake Hill, *Le Roy;* near Cooper's Glue Factory, *Ruger;* Flushing, Astoria, etc.—**S. aureus**, L.; Bloomingdale, *Torr. Cat.;* Morristown, N. J., *W. H. L.;* Train's meadows, plentiful, Maspeth, not plentiful, *Ruger;* Glen Cove, *Coles;* and probably common elsewhere though not reported; Var. **Balsamitæ**; "Wet meadows, along brooks, N. J.," *Torr. Cat.*

CENTAUREA, L.—**C. Cyanus**, L.; escape; L. I.; N. Y., *O. W. M.;* wheat fields, Yonkers, *Pooley.*—**C. Melitensis**, L., referred to § 79, Vol. I., was evidently planted.

CIRSIUM, Tourn.—**C. lanceolatum**, Scop.; very common; N. Y.—**C. discolor**, Spreng.; common; N. Y., *O. W. M.*—**C. muticum**, Mchx.; common; N. Y.—**C. pumilum**, Spreng.; common; N. Y., *Nuttall.*—**C. horridulum**, Michx.; "Sandy fields, particularly near the salt water; rather common on Long Island." *State Flora;* Glen Cove, *Coles;* Staten Island, *Ruger.*—**C. arvense**, Scop.; too common; N. Y.

ONOPORDON, Vaill.—**O. acanthium**, L.; near Patterson, *W. H. L.;* Inwood, *Le Roy.*

LAPPA, Tourn.—**L. officinalis**, Allioni; Var. **major**; very common; Central Park, *R. & P.*

CICHORIUM, Tourn.—**C. Intybus**, L.; common; N. Y.; Glen Cove, *Coles*

KRIGIA, Schreber.—**K. Virginica**, Willd.; common; N. Y.; Glen Cove, *Coles;* not abundant on this part of L. I., *Ruger.*

CYNTHIA, Don.—**C. Virginica**, Don; common in N. J.; Fordham, Westchester Co., and Glendale and Locust Av., L. I., *Ruger.*

CREPIS, L.—**C. virens**, L.: Var. **diffusa**; Greenwood Cemetery, vid. § 50, Vol. I.

9. **Herbarium Suggestions.**—No. I. *Size of genus-covers and sheets for species.*—It is evident that some uniform standard ought to be selected by botanists for the size of the sheets of paper to which their dried specimens of plants are attached, and of the genus-covers containing the same, for this would greatly facilitate exchange from one herbarium to another. At present, however, no such standard is recognized, as is evident on consulting botanical works or in looking over the herbaria of different collectors.

Writers on botany usually pass the subject over, regarding it, apparently, as *infra dig.* Taking up half a dozen authors, whose works happen to be within reach, I find only two who mention it:—

Balfour, Manual of Botany, 1855, p. 658, recommends that the sheets for species should be 17 inches in length and 10½ in breadth.

Prof. Alphonso Wood, Botanist and Florist, 1870, says the paper should at least be 14 by 11 inches.

Dr. Torrey's sheets, which I have measured in his herbarium, are fifteen and one-quarter by eleven inches.

Dr. Gray's sheets for species are sixteen and four-tenths by eleven and one-half inches; his genus covers are sixteen and four-tenths by twelve inches. It may be noticed, in passing, that this relative proportion is objectionable, because no difference is made in height between the species and genus sheets, and, although packing a genus cover will not diminish its height, yet, in the necessary hurry of insertion, species sheets will project a little above or below, and in time will show a discolored margin, due to exposure to air and dust, which liability can practically be obviated only by allowing a difference in height as well as width.

Again, if report be true, an eminent botanist, on commencing his collection many years ago, ordered paper of a certain size which he had carefully selected. His stationer made a mistake of half an inch or so; the paper thus cut was too valuable to be thrown away; and the error has been perpetuated in all subsequent purchases, and has been followed by many of his pupils!

Whatever size is adopted, in commencing a collection, it must, almost necessarily, be retained in future, so that the following suggestions on this score can only be of use to younger botanists.

The size which I would propose as a standard, and one which I have tested by many years experience, is, in the extreme measurement of all outside covers containing sheets of dried specimens, eighteen inches in length by twelve inches in breadth; and the size of the enclosed sheets just one-half inch less each way. Your genus-covers, when folded and ready for use, will then measure a foot and a half in height by a foot in width. Your sheets to which your plants are attached will measure seventeen and a half inches in height by eleven and a half inches in width. These dimensions possess the following recommendations :—

1st,—They are simple and easily recalled to mind.

2nd,—They are adequate for all plants which you may wish to put up yourself, and will include almost all mounted specimens which you are likely to receive from others. The only exception to this that I know of, was a collection of mounted ferns, imported by our lamented friend Denslow from Mr. Smith, of London, whose sheets were an inch or two larger each way.

3rd,—Most of the paper as found in the market can be cut up into these dimensions without much loss or waste. Owners of very large collections can order their paper direct from the manufacturers, of the exact size they desire, but this is impracticable for small quantities, and hence the present consideration is important.

I would remark that your stationer may tell you, that he can only cut certain paper, which you have selected, an eighth of an inch less in one of its dimensions than the size asked for ; thus, in order to avoid a curling or bending of the margin, it may be necessary to have your folded genus covers eleven and seven-eighths inches wide, instead of fully twelve inches, and this slight difference may be disregarded, as it is more than allowed for in the size of the sheets for species.

In putting up mosses, there are two plans which are sanctioned by different botanists. Some, like Prof. A. Gray, attach them to sheets of the same size as they do other plants. The advantage of this is, that the sheets will fit into the same pigeon holes as those containing the phænogamous plants ; the disadvantage is, that, since most mosses are small, a large part of the sheet will often be wasted room.

Other botanists use smaller sheets for mosses, in which case it is well to cut the ordinary genus covers and the sheets for species into four parts, and this will give a convenient size, and enable you to use the paper you have on hand. By this plan, however, smaller pigeon holes or paste-board boxes will be required. Every botanist must make his own choice between these two methods.

Some reader may like to know what quality of paper to select both for covers and sheets. I would say in reply, that I have obtained my paper recently from Asa L. Shipman & Son, Stationers, 25 Chambers St., N. Y., who have samples of the quality of paper used by Prof. Gray and Prof. Eaton, kindly furnished me by the latter. F. J. B.

10. **Baccharis halimifolia**, L.,—grows on the edge of salt marsh, inside of Throg's Neck, quite near Fort Schuyler ; also along the southern edge of the salt marsh through which the Pocantico empties into the Hudson. In both places also grow **Iva frutescens**, L., and **Helenium autumnale**, L. **Solidago tenuifolia**, Pursh, I have found in several places back from the river, all the way from Dobb's Ferry to Sing Sing. **Helianthus decapetalus**, L., is frequent in Westchester Co., but by no means as common as in Central New York. **H. tuberosus**, L., either as a scape or otherwise, I have frequently seen in various places in Westchester Co. and on Long Island.

11. **Solidago elliptica**, Ait.—John Carey wrote me, years ago, that he found this growing in the Hackensack meadows, near N. Y.

S. T. Olney.

Carex subulata, Michx.—John Carey cites in Gray's Manual, ed. 1, 1848, Long Island. He wrote that Long Island should have been Rhode Island. Torrey in N. Y. State Flora, II., 392, also cites "deep cedar swamps, Long Island" for this species. There are no specimens in his Herbarium from Long Island: there are from Rhode Island. Is it a Long Island species? S. T. O.

Mr. Olney has kindly sent us specimens of *Solidago elliptica* from Rhode Island, and extends the offer of the like liberality to others of the club, as far as his supply of specimens permits. We were surprised at the appearance of the leaves, which, without the hairiness, have the general aspect of those of *S. altissima;* the panicle is narrow, like that of *S neglecta.* It has probably been mistaken for the former, and may be found again in this region. We have *Carex subulata* from Staten Island.

12. **Spirodela.**—Prof. Hegelmaier writes, in reference to "Dr. Engelmann's full and exact analysis of the American Spirodela: I think it, would be very superfluous on my part to give a description, which would be in a great measure a mere repetition of his words. An article respecting some anatomical details, which can not well be treated without a greater lithographic plate, it would perhaps be best to give to the Botanische Zeitung."

"In the dried specimens first received, the ovary was always 1-ovuled, with one exception in which it was 2-ovuled. In the specimens preserved in alcohol, I found almost the half of the ovaries 2-ovuled. Probably the latter specimens have been collected some time after the former ones, and the ovules from some unknown cause have failed in the first period of the blossom. [The alcoholic specimens were gathered later, and allowed to mature in the house.] In one case even a half ripe fruit contained two young but well developed seeds, and there is little doubt that they were both upon the point of ripening. It is hardly necessary to remark, that these facts confirm the opinion already expressed by Dr. E., that the plant is a depauperated form of *S. polyrrhiza.*"

"The exostome of the ovules does not seem to me to be closed at the time of blossoming, but to be open as far as in the species of Lemna whose ovules are anatropous or hemianatropous. Naturally, after the fecundation, the outer integument increases quickly so as to close the micropyle. The epidermis of the anthers contains a number of cells filled with the same pigment which occurs in certain cells of many parts of these plants.

Tübingen, Jan. 17th, 1871."

13. **Notice to Correspondents.**—We are in want of reports from Closter, New York, and other quarters.

Terms—*One dollar for one copy: five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3 E. 33d St.—Editor 224 E. 10th St.

14. **"Herbarium Suggestions."**—Our friend, Dr. Gray, has kindly sent me some criticisms and suggestions with regard to the article that appeared in the last number of the Bulletin, under the above heading.

Dr. Gray says: "I intended that my Genus covers should be sixteen and a half inches long; the paper for species sixteen and three-eighths. I find that as much difference in length as will work well when the sheets are rather numerous in the same cover, and when they are shoved—as is usually done—quite back into their compartments. Your space of one-half inch will all be found in front, i. e., at the bottom margin. This does not look well, and the projecting margins are liable to become curled or dog-eared."

[I have not myself experienced any difficulty of this kind. *F. J. B.*]

Dr. Gray adds: "Again I find it best to have the Genus covers first folded in quarter quires or so, and then trimmed to twelve inches on the front edge. This makes the inner sheets a little narrower and with a sharper fold on the back,—advantages for small or monotypic genera, for which I reserve them; while the outer sheets, by their slightly greater width and the rounded fold at the back, are adapted for larger genera or sections." F. J. B.

15. **Characeæ.**—For some years I have been much interested in the study of our Characeæ, and especially since I have obtained the beautiful specimens issued by Braun, Rabenhorst, & Sitzenberger, by means of which I have been enabled to identify some species. I have received a few from Mr. C. C. Frost of Brattleboro, Vt., acurately named; and Mr. Le Roy has given me some specimens he has picked up. These, with my own collections, make but a beginning; and I should he glad to receive these interesting plants from all parts of the country, especially if collected when in fruit, or male and female plants when, as often, they are diœcious. In Europe as many as *fifty* different species, including a great number of varieties, are known, nearly one third of which belong to the genus Nitella. I have received great help from Prof. A. Braun of Berlin, who has named many species for me, and determined one new and beautiful variety—

1. **Nitella acuminata**, A. Br., var. **subglomerata.**—I have gathered at Morristown, N. J. Prof. Braun says it is not rare in the warmer parts of the United States, but is not found at all in Europe.
2. **Nitella polyglochin**, A. Br., var. **microcarpa.**—I have probably from New Jersey; this is not found in Europe.
3. **Nitella tenuissima**, Desv.—was collected by Mr. Le Roy at Peekskill on the Hudson.
4. **Nitella syncarpa**, Thuill.—I have received from Mr. Frost of Brattleboro, Vt.
5. **Nitella capitata**, Nees ab E.—is quite common in the small streams on Long Island, appearing in the spring (as in Europe).
6. **Nitella flexilis**, L.—I have received from Mr. Frost. The variety **subcapitata** I find very abundant in Litchfield Lake, Ct.

7. **Nitella mucronata**, A. Br.—From Mr. Frost.
8. **Nitella gracilis**, Sm.—From Mr. Frost.
9. **Nitella batrachosperma**, A. Br.—From Mr. Frost.
10. **Chara coronata**, var. **Schweinitzii**, A. Br.—I have gathered in New Jersey, and have also received from Mr. Frost.
11. **Chara crinita**, Wallr.—I gathered in 1869, in brackish water Montauk Point, L. I. I found only female specimens. Prof. Braun says it has not before been known from America, and that in Europe the male plants are exceedingly rare and in the Baltic sea altogether wanting. He was interested in finding the next species mixed with it, as they are always associated in Europe.
12. **Chara aspera**, Willd.—with the last.
13. **Chara fragilis**, Desv. (*C. vulgaris*, L.)—common in Litchfield Lake, Ct., and in various localities; sent by Mr. Frost.
14. **Chara gymnopus**, var. **elegans**, A. Br., in litt.—found at Peekskill, N. Y., by Mr. Le Roy. Prof. Braun says that it approaches the var. *trichacantha* from Texas, S. C., and Florida. T. F. A.

16. **Gnaphalium polycephalum**, Mchx.—I have seen now and then in Westchester Co., but I think not very abundantly. I think it prefers a barren *limestone* soil; at least I have always seen it flourishing best in such soil.

Senecio aureus, L.—not the luxuriant typical form, but two forms rather depauperate, one of which I have marked var. **Balsamitæ**, I have found in considerable quantities on Staten Island.

I. H. H.

17. Judge G. W. Clinton, of Buffalo, had recently occasion to appeal to the Post Master General in relation to the postage of botanical specimens, and received the following decision.

"A liberal construction of the 222d section of the postal law would justify sending *Botanical Cuttings* at a lower rate of postage than letter rates, viz, 2 cents for each four ounces or fraction thereof, prepaid by stamps."

Of course the sender must vouch for their being no manuscript, and fasten the bundle by strings, or, if pasted, leave the end open, superscribing, "Botanical specimens."

18. **Anthers of Lemnæ.**—That the two anthers should expand at different times is very natural, as they represent two distinct flowers; that I always see: but I was surprised to find always the anterior or first stamen developed in my specimens of Spirodela from Staten Island; and now, since I learn that they were artificially raised, I suggest a better explanation than my previous one, viz, that from want of vitality under the circumstances only one, the first one, opened. In Lemnæ collected out of doors, "wild," I find sometimes one, sometimes the other fully developed; and, if the second or posterior one is just opening, the other is always effete and elongated, a condition which I have never seen in this Spirodela. After shedding pollen the second also elongates, as in water Callitriches. It will be interesting to find what time inter-

1 – I. p. 43, supra.

venes, in fair weather, from the developement of one stamen to that of the other in Lemnæ. G. Engelmann.

The expression "artificially raised" is perhaps too strong to express the condition of plants found to be in a flowering stage and placed in a dish for a few days to allow them to show their blossoms. Eds.

19. **Exchanges.**—Chas. Keck, Ems, Upper Austria, desires to exchange European for American plants, through the proffered agency of the Smithsonian Institute.—A. H. Curtiss of Liberty, Virginia, wishes to exchange a large number of species for an equivalent made up by one or several N. Y. botanists. We have his marked catalogue.—Dr. I. S. Moyer, of Quakertown, Pa., wants U. S. plants; we have a partial catalogue.—Jacob Hammond, Victor, N. Y., local. —E. L. Hankenson, Newark, N. Y., especially Salicaceæ, Cyperaceæ, and Filices. Dr. Geo. Engelmann, of St. Louis, desires "an authentic native living plant (or joint) if possible with fruit," of our New York Opuntia, or Prickly Pear.

20. **To Correspondents.**—We are deficient in reports from Westchester Co., and New Jersey, especially the district between the Raritan and Ocean. We request the friends of the cause, in all directions, to search out the botanists, and bring them into communication with us. This year we hope to see a considerable accession to the number of our subscribers.

21. **Publications received.**—1. *Musci Appalachiani: Tickets of Specimens of Mosses collected mostly in the Eastern Part of North America*, by C. F. Austin, comprises a number of new species, and one new genus, **Micromitrium.** We hope to hear from the Cryptogamists of the vicinity.—2. *Archives of Science, and Trans. of the Orleans Co. Soc. of Nat. Sci., Newport, Vt., Vol. I., Nos.* 1 & 2. Among the contents are a general notice of the Flora of Vermont, by Prof. George H. Perkins; and a list of the Vermont Equisetaceæ and Filices, by Chas. C. Frost. Among the ferns, we notice the rare *Pellæa gracilis*, Hook., and *Woodsia glabella*, R. Brown.

22. **Spring.**—*Acer dasycarpum*, Ehr., was in full bloom in Brooklyn, Mch. 13th. J. S. M.

23. **Solidago elliptica**, Ait.—Mr. Olney has kindly sent his duplicates of this species to Dr. Torrey, for the benefit of the Club. In comparing the leaves in shape and texture with those of *S. altissima*, L., we meant not to imply any doubt of its affinity to *S. neglecta*, Torr. & Gray.

HIERACIUM, Tourn.—**H. Canadense**, Mchx.; New Jersey, Closter, *Austin;* Long Island, Union and Woodhaven, *Ruger*, Glen Cove, *Coles;* Westchester Co., *W. H. L.*—**H. scabrum**, Mchx.; N. Y., *O. W. M.;* common; but we have no report from Westchester Co. except the general statement in the State Flora, that it is "common in the vicinity of N. Y."—**H. Gronovii**, L.; common; but not reported from N. Y., Westchester, or the Sixth District, between the Raritan and the Ocean.—**H. venosum**, L.; common, N. Y.—**H. paniculatum**, L., common ; N. Y.

NABALUS, Cass.—**N. albus**, Hook.; common ; N. Y., *O. W. M.;* we believe this to be our most usual form, though very few report it, perhaps confounding it with the next : Var. **Serpentaria**; *Le Roy ;* Chatham, N. J., *W. H. L.*—**N. altissimus**, Hook.; not uncommon in rich woods ; N. Y., *O. W. M.;* Central Park, *R. & P.;* Glen Cove, *Coles ;* Chatham, N. J., and Westchester Co., N. Y., *W. H. L.*—**N. Fraseri**, DC.; Babylon, L. I., *Merriam ;* Closter, common, *Austin ;* Chatham, common, Bergen Point, South River, N. J., *W. H. L.:* Var. **integrifolius**; Long Island, near New York, *State Flora ;* Long Hill, N. J., *W. H. L.*—**N. racemosus**, Hook.; Hackensack meadows; Scarsdale, Westchester Co., *J. S. Meriam,* vid. § 91, Vol. I.; "used to be quite common about Closter, have not noticed it of late," *Austin.*

TARAXACUM, Haller.—**T. Dens-leonis**, Desf.; everywhere ; N. Y.

LACTUCA, Tourn.—**L. Canadensis**, L.; very common ; N. Y.: Var. **integrifolia**, Torr. & Gray ; vicinity of New York, *State Flora ;* Yonkers, *Pooley ;* East New York, L. I., Chatham, N. J., *W. H. L.:* Var. **sanguinea**, Torr. & Gray ; vicinity of New York, *State Flora.*

MULGEDIUM, Cass.—**M. acuminatum**, DC.; Weehawken, *Torr. Cat.;* Closter, common, *Austin ; Le Roy ;* near New York, *State Flora.*—**M. leucophæum**, DC.; "In woods near the Little-Falls of the Passaic," *Torr. Cat.* "Common on Long Island," *State Flora ;* Chatham, N. J., abundant, *W. H. L.*

SONCHUS, L.—**S. oleraceus**; N. Y., *O. W. M.;* Morris Co., N. J., *Austin ; Torr. Cat.;* cultivated grounds and road sides, 79th St., Kingsbridge, Flushing, Hoboken, *W. H. L. ;* Brooklyn, *Merriam.*—**S. asper**, Vill.; N. Y., *O. W. M.;* Yonkers, *Pooley ;* Brooklyn, Hoboken, *Merriam ;* New Durham, Astoria, *W. H. L.*—**S. arvensis**, L.; "Banks of the Hudson, Greenwich," *Torr. Cat.;* Staten Island, Long Island, Bergen Point, *W. H. L.;* Yonkers, *Pooley.*

LOBELIACEÆ.

LOBELIA, L.—**L. cardinalis**, L.; common; N. Y.; Babylon, L. I., brook sides, a beautiful white and flesh colored variety, 1868, *Merriam.*—**L. syphilitica**, L.; common ; N. Y.—**L. inflata**, L.; common ; N. Y.—**L. spicata**, Lam.; common ; N. Y.—**L. Nuttallii**, Rœm. & Sch.; Long Island, Jamaica, *Shæffer in State Flora*, Babylon, *Merriam:* New Jersey, South Amboy, &c.—**L. Kalmii**, L.; "On the Island of New York," *Le Conte in Torr. Cat.:* not since reported, but may possibly grow on the calcareous rocks on the North end of the Island, where Mr. Denslow used to find *Camptosorus*, Link.—**L. Dortmanna**, L.; Rockland Co., *Austin.*

Terms*—One dollar for one copy : five dollars for seven ; and half a dollar for every additional copy, per annum.*

CAMPANULACEÆ.

CAMPANULA, Tourn.—**C. rotundifolia**, L.; Babylon, L. I., Weehawken, *Merriam;* Palisades, *Austin;* "on the banks of rivulets among rocks," *Torr. Cat.;* clefts on Hudson R. R. R. between Dobb's Ferry and Sing Sing, also on mountain above Nyack, *Hall.*—**C. aparinoides**, Pursh; not uncommon, though not reported from N. Y., or the Ocean district of N. J.—**C. Americana**, L.; *Le Roy;* roadsides, Flushing, *Allen.*—**C. rapunculoides**, L.; but rather rough than smooth, is well naturalized on Long Hill, Chatham, N. J., *W. H. L.*—**C. Medium**, L.; a scape in several places in Westchester Co. (Greenburgh) and Connecticut, *Hall.*

SPECULARIA, Heister.—**S. perfoliata**, A. DC.; common; N. Y.

ERICACEÆ.

GAYLUSSACIA, H. B. K.—**G. dumosa**, Torr. & Gr.; Babylon, L. I., *Merriam:* Var. **hirtella**; Staten Island, *Le Roy;* Squam, N. J., *W. H. L.*—**G. frondosa**, Torr. & Gr.; common; N. Y.—**G. resinosa**, common; N. Y.

VACCINIUM, L.—**V. Oxycoccus**, L.; Otter Pond, Closter, *Austin;* New Durham swamp, *Torr. Cat.*—**V. macrocarpon**, Ait.; common on Long Island and in New Jersey; Closter, scarce, *Austin;* not reported from New York, Westchester, or Staten Island.—**V. stamineum**, L.; common in New Jersey, and Westchester Co.; N. Y., *Torr. Cat.;* Central Park, *R. & P.;* not reported from Staten Island or Long Island.—**V. Pennsylvanicum**, Lam.; common, *Torr. Cat.;* Long Island, Glen Cove, *Coles*, Babylon, *Merriam*, &c.; Central Park, *R. & P.;* scarce about Closter, *Austin;* Staten Island, *Hall.*—**C. vacillans**, Solander; "common in the vicinity of New York, and along the Hudson," *State Flora;* N. Y., *W. H. L.;* Central Park, *R. & P.;* Staten Island, *W. H. L.;* common at Closter, *Austin.*—**V. corymbosum**, L.; very common with its varieties; N. Y: Var. **glabrum**; Secaucus, Staten Island: Var. **amoenum**, *Torr. Cat.;* Staten Island, *W. H. L.:* Var. **pallidum**; Secaucus, *Allen:* Var. **atrococcum**; abundant in Secaucus swamp, also on Staten Island, *W. H. L.*

CHIOGENES, Salisb.—**C. hispidula**, Torr. & Gray; *Le Roy;* "In the cedar swamp, New Durham, N. J., *Cooper*, v. v." *Torr. Cat.*

ARCTOSTAPHYLOS, Adans.—**A. Uva-ursi**, Spreng.; Palisades, rare, *Austin;* Patterson falls, *Cooper in Torr. Cat.;* Pine barrens of N. J., *Torr. Cat.;* Ridgewood aqueduct, near the Jewish cemetery, *Ruger;* and abundant eastward on L. I.

EPIGÆA, L.—**E. repens**, L.; abundant in the sandy woods of N. J. and L. I., also found on Staten Island, and the banks of the Bronx, vid. §§ 5 and 23, Vol. I.; various places in Westchester Co., *Hall.*

GAULTHERIA, Kalm.—**G. procumbens**, L.; common to all our districts, except perhaps Staten Island; but rare about Closter, and in Rockland Co., (abundant in South Jersey and Orange Co.,) *Austin;* Canarsie and eastward, L. I., *Merriam, Coles;* Inwood, N. Y., *Le Roy;* rose colored variety near Patchogue, L. I., *Hall.*

LEUCOTHOË, Don.—**L. racemosa**, Gray; N. Y., *Torr. Cat.;* Central Park, *R. & P.;* L. I., New Lots, *Ruger*, Canarsie and east, *Merriam*, Closter, *Austin ;* New Durham ; Secaucus ; Staten Island.

CASSANDRA, Don.—**C. calyculata**, Don ; New Jersey, *Torr. Cat. ;* Secaucus swamp, *W. H. L.;* peat bogs, Closter etc., abundant in South Jersey, *Austin ;* Babylon and east, L. I.

ANDROMEDA, L.—**A. polifolia**, L.; peat bogs, Budd's Lake, *Austin.*—**A. Mariana**, L.; N. J., Closter, *Austin*, S. Amboy, *Torr. Cat.*, Red Bank etc.; abundant on Long Island ; Central Park, *R. & P.;* Staten Island.—**A. ligustrina**, Muhl.; common ; N. Y.

CLETHRA, L.—**C. alnifolia**, L.; common ; N. Y.

KALMIA, L.—**K. latifolia**, L.; common ; N. Y.; not in this immediate vicinity on Long Island, *Ruger ;* but abundant a little farther east, *Coles, Merriam.*—**K. angustifolia**, L.; common, but not reported from N. Y.

AZALEA, L.—**A. viscosa**, L.; common; N. Y.—**A. nudiflora**, L.; common; N. Y.

RHODODENDRON, L.—**R. maximum**, L.; New Durham and Secaucus swamps ; Big Swamp, near Chatham, N. J., *W. H. L.;* Staten Island, *Torr. Cat.;* South Jersey; near Babylon, etc., L. I., *State Flora.*

RHODORA, Duhamel.—**R. Canadensis**, L.; Sam's Point Mountain, *Austin.* [extra-limital?]

PYROLA, Tourn.—**P. rotundifolia**, L.; N. Y.; common.—**P. elliptica**, Nutt.; common ; not reported from N. Y.—**P. chlorantha**, Swartz ; Closter, *Austin.*—**P. secunda**, L.; Closter, *Austin ;* open sandy woods, N. J., *Torr. Cat.;* about Jamaica pond etc., L. I., *Ruger.*

CHIMAPHILA, Pursh.—**C. umbellata**, Nutt.; common ; N. Y.—**C. maculata**, Pursh ; common ; N. Y.

MONOTROPA, L.—**M. uniflora**, L.; common ; N. Y.—**M. Hypopitys**, L.; common, but New York and Staten Island not reported. The var. **rubra** grows in the same grounds with the lighter colored and smaller form, but springs up much later in the season. Mr. Greene, of Frostburg, Md., notices that it has a peculiar odor resembling that of *Polygala Senega.*

Pterospora, Nutt., was found by Dr. Mead (State Flora) in a wood north of Peekskill, rather beyond our limits ; and *Schweinitzia*, Ell., is reported from Long Island, but wants confirmation.

24. **Note on Darlingtonia Californica**, by J. Torrey.—It is now more than sixteen years since that distinguished botanist, M. Alphonse De Candolle, published in the Bibliothèque de Genève some remarks on the genus Darlingtonia, a translation of which appeared in a horticultural journal of Philadelphia. *

M. De Candolle states that the figure of the plant exhibits a character not mentioned by me in the description, and which is very remarkable if it be real ; that is, if it be not an error of the draughtsman. The five cells of the ovary are represented as *alternate* with the sepals ; but in Sarracenia, which he had seen living, the cells of the ovary are opposite the sepals. The artist who executed the drawing is the well known Mr. Charles Sprague, who made all the illustrations for Dr. Gray's Genera of the Plants of the United States, and in that work the cells of Sarracenia are correctly represented as opposite the sepals. M. De Candolle asks, "Has he committed an error in the plate of the Darlingtonia? "Considering his usual accuracy, I doubt it. On the other hand, it "is difficult to believe in contrary symmetries in genera so closely "allied. I have discovered a similar fact in the family of Campa- "nulaceæ, and it has enabled me to establish several genera, which "are, besides, indicated by their external appearance. The thing, "then, is not without a parallel, though it is very rare, and should "be well examined before being admitted. I would, therefore, point "out to American botanists, and particularly to Dr. Torrey, the "great importance of verifying fig. 1 of Sprague's plate."

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* The Florist and Horticultural Journal. [discontinued.]

In making the details of the original drawing, Mr. Sprague had at his disposal only a single flower of a dried specimen, and it was not until recently that I have been able to test, in a satisfactory manner, the accuracy of his analysis. It is known to most of our botanists, that after waiting many years to see the plant in a living state, we have, through the kindness of the brothers Messrs. Henry, who reside near where it grows abundantly in California, and by the liberality and prompt action of Messrs. Wells, Fargo & Co's Express, received fresh living specimens, several of which have flowered. I am now able to state that Mr. Sprague has shown "his usual accuracy" in all the details of his drawing. The cells of the ovary are *alternate* with the sepals. Indeed, I have found scarcely any thing to add or alter, now that we have the living plant for comparison.

The theoretical structure of the flower of Darlingtonia, we think, accords with what is actually the case. The stamens are in a single series, and are mostly about 15 in number. If we assume that they represent only five, each by collateral chorisis increased to three, they will form a verticil alternating with the petals, so that they will necessarily alternate with the carpels also. In Sarracenia the stamens are in a double series, and probably, as in Darlingtonia, multiplied by chorisis; the two verticils alternating with each other, so that the carpels, in this view, will be opposite the sepals.

COLUMBIA COLLEGE, April 11th, 1871.

25. **Broussonetia.**—Early in May last I witnessed a remarkable phenomenon in connection with the inflorescence of Broussonetia papyrifera. It was about 9 A. M., and the morning sun was just coming over the roof of an adjacent house and striking the branches of the tree, of which the leaves were not yet out, but the catkins were fully formed, though unexpanded. As I casually observed it, I was struck by seeing a light cloud, apparently of smoke, floating amid the branches. I imagined that it must come from some neighboring chimney; but, upon attentive observation, no such smoke could be discerned. There was no smoking chimney near; nor, in a city where anthracite is so generally burned, is it ever easy to find one.

The smoke appeared for a moment, drifted away with the wind, and yet reappeared as rapidly as it vanished. I soon saw that it arose from no foreign source, but was connected with the tree itself; for two or three small clouds would suddenly appear in nearly as many different parts of the tree at nearly the same moment; and as each would be driven off and dispersed a new one would appear elsewhere. These puffs of smoke were all of nearly uniform size, each perhaps as large as that which is made by the lighting of a lucifer match. They were entirely confined to the tree, not a particle being visible beyond its outline, and appeared throughout its whole extent.

I watched the phenomenon for some time, till I became entirely satisfied that the seeming smoke really proceeded from the tree itself, and that it could be nothing else than the pollen, from the catkins which opened with a sudden explosion in the rays of the sun.

The phenomenon continued in full activity as long as I was at liberty to observe it, and when I was obliged to leave the spot, after some ten minutes of observation, the process was still going on, two or three of the little puffs constantly appearing in widely separated branches at every instant. B. N. Martin.

26. **Presses.**—I have been interested in your remarks on the size of holders etc. They were very opportune. I am satisfied that we should have more herbariums, if young collectors had more instruction on this subject.

I have often thought of describing my press. I have used the lever and the screw press both, and prefer the one I have now to either: it consists of two pieces of pine boards, 12 × 17 inches, and half a dozen stones, weighing from 5 to 10 lbs. each. The advantage of this simple contrivance is, that it is cheap and within the means and ingenuity of any one, and that it constantly acts by force of gravity.

I have besides ½ dozen pieces of *Binder's Boards*, well painted, to put between fresh and partly cured plants. Several presses can be substituted, or bits of board can be used instead of Binder's Boards, when cheapness is an object.

I make pads or driers by cutting newspapers to the size of the boards of the press, and fastening 8 thicknesses together by stitching the corners with strong thread. O. R. Willis, White Plains.

27. **Cerastium vulgatum, L.**—grows sparingly on the rocks on the Westchester side of Harlem River, east of McComb's Bridge.

28. **Exchanges.**—A correspondent in England wishes to exchange mosses and marine algæ. It seems that packets can be sent by book post at a moderate charge.

29. **Note Books.**—Always take a note book on a botanical excursion. Many observations may thus be preserved which would lose their value if trusted to uncertain memory.

Terms—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

30. Herbarium Suggestions.—No. 2. *Cases for specimens.*—Fire-proof apartments and cases fixed to the walls are usually attainable only by Colleges and other public institutions; although, to their shame be it said, they are often too penurious to provide such necessary protection to invaluable collections, that, once destroyed, could never be replaced.

The amateur botanist must be content with humbler accommodations. In ordering the cases to contain his collection, he has to determine the material of which they are to be made, their external dimensions, the number and size of the compartments, etc.; bearing in mind that they should not be so large and unwieldy that they cannot readily be moved if necessity requires; that they should be of such a shape that others may be added to their number as his collection increases; and that the compartments should be within easy reach of the hand and properly adapted to the size of his sheets.

After trying cases of different forms and sizes, my own experience leads me to recommend the following dimensions, which are particularly adapted to the genus-covers previously suggested, viz.:
12 18 × ~~20~~ inches, but which will answer for sheets smaller in either direction by about an inch.

Material.—Black walnut externally, one inch in thickness and well-seasoned. Internally, pine or other light wood.

External dimensions.—Width, four feet, six inches. Height, three feet, seven and a half inches. Depth, twenty-one inches.

Internal arrangement.—Depth in the clear, nineteen inches.

Four series of compartments, side to side, of twelve each; forty-eight compartments to each case

Each compartment twelve and six-tenths inches wide, and three inches high.

Doors.—Two in number, meeting in the centre; each three feet, five and a half inches high by two feet, two and a half inches wide, and panelled.

It will be a great convenience to have each shelf cut out at its centre in a semi-lunar form, so as to facilitate raising the sheets above it between the fingers.

If two of these cases be placed one upon the other, the upper compartments of the higher one will still be within reach by stepping upon an ordinary chair. Any greater height requiring the use of a step ladder is better avoided, for obvious reasons.

The height, above recommended, of each compartment, viz., three inches, is less than that usually adopted in large herbaria, in which five inches are about the common standard; but for herbaria of moderate size, I think the former measurement preferable, to avoid crowding a number of small natural families together.

A case like the above will cost, at the present time, in New York City, about forty-five dollars, but can doubtless be made cheaper in the country. About five dollars will be saved by having the exterior of pine wood.

F. J. B.

31. Viola rostrata, Pursh.—We recently detected this fine violet in a rocky glen among the hills back of South Orange, N. J. It is particularly abundant about the foot of what is called Hemlock Falls, where **Mitella dephylla**, L., also abounds. This makes the twelfth violet in our catalogue, not counting the varieties. Of the latter we sought in rain this season in the locality indicated by Mr. Hall, Vol. I. § 49, for the white and bicolor varieties of *V. pedata*, L., but found the variegated *V. cucullata* abundant. A longer search might have revealed the others. The long beak of *V. rostrata* is very remarkable, being fully twice as long as the petals. Would that some naturalist would discover what moth or other insect is required to sound the depths of this deep nectary, and whose comparative rarity must be the occasion of the rarity of this species, which, we understand is abundant in the interior of the state.

While speaking of Violets, we may mention that our attention has been called this spring to the fragrance of *V. blanda*. We gathered many flowers of this sweet smelling species which seemed quite devoid of odor ; whereas, on the other hand, we thought we discovered a faint fragrance in *V. lanceolata*, none at all in *V. primulæfolia*. We should like to learn the experience of others on this subject. *V. tricolor*, var. *arvensis*, was very abundant this May on the rocks back of Weehawken ferry overlooking the Hackensack meadows.

32. I have just received a letter from Rev. Dr. Shoop, now at Augusta, Michigan, who sends me a specimen of *Corydalis flavula*, Raf., with the remark "I found it first along the Mich. C. R. R. track, "four specimens of it, but it did not appear to be established, but "rather a new comer, whose hold was slight and existence preca"rious. I afterwards found one specimen in the woods. I send "you a specimen in this. This is the whole plant I found in the "woods, except the root and root leaves." The particularly curious thing about the specimens is their size. The one Mr. Shoop sends me is, by exact measurement, 2 36-100 inches in extreme height, and 4-5 of an inch in its widest spread. It has two blossoms.

Mr. Shoop also has some remarks about the early spring which may be worth mentioning : "*Acer dasycarpum* in flower on 11th March, *Erigenia bulbosa* in flower on the 21st March, and heard of its being found by others in flower several days earlier. Eight plants in flower in March, and 46 by the 1st of May." His climate is much colder than ours : about the latitude of Albany. I. H. H.

33. Utricularia minor, L.—Mr. Merriam informs me that Mr. G. B. Brainerd has gathered what he considers to be this plant from small pools near the shore at New Lots, L. I. I am pretty confident that I gathered it many years since on the shore of a small pond between South Brooklyn and Flatbush. This was late in the season, and I lost the specimens on the way home, so that I was unable to give it a close examination, and had no opportunity for revisiting the spot that year. I have never been able to find the plant since. W. H. L.

34. Extra-limital.—Mr. Austin writes that he has found *Gratiola sphærocarpa*, Ell., in Cape May Co., N. J.; also, in South Jersey, *Plantago heterophylla*, Nutt. *Utricularia subulata*, L., also grows in the Jersey pine barrens. Some, or all, of these plants are to be looked for within our limits.

DIAPENSIACEÆ.

PYXIDANTHERA, Mchx.—**P. barbulata**, Mchx.; South Amboy, etc.

AQUIFOLIACEÆ.

ILEX, L.—**I. opaca**, Ait.; Kingsbridge, N. Y., *State Flora;* Flatbush, Glen Cove etc., L. I.; Sandy parts of N. J., Redbank etc.; Sandy Hook, *Ruger*.—**I. verticillata**, Gray; common; N. Y.—**I. lævigata**, Gray; Central Park, *R. & P.;* Long Island, Canarsie to Babylon, *Merriam;* Secaucus swamp; Staten Island; Chatham, N. J.; not at Closter, but commoo in South Jersey, *Austin*.—**I. glabra**, Gray; Long Island, sandy woods, Canarsie to Babylon, *Merriam;* Staten Island, *W. H. L.;* Secaucus and New Durham swamps; sandy parts of N. J.

NEMOPANTHES, Raf.—**N. Canadensis**, DC.; Hackensack swamps; Blue Point, L. I., *Hall.*

EBENACEÆ.

DIOSPYROS, L.—**D. Virginiana**, L.; southern part of state, *State Flora;* West Farms, Chatham, N. J., Bergen Point, *W. H. L.;* Glen Cove, *Coles;* common neor White House on N. J. Central R. R., and in South Jersey, *Austin.*

PLANTAGINACEÆ.

PLANTAGO, L.—**P. major**, L.; very common; N. Y.—**P. cordata**, Lam.; "In a swamp near Clark's woods, 3 miles from the city," *Torr. Cat.;* Manhattanville, *State Flora*.—**P. maritima**, L.: Var. **juncoides**; common in salt marshes; N. Y.—**P. lanceolata**, L.; very common; N. Y.—**P. Virginica**, L.; Patterson, Red Bank, N. J., *W. H. L.;* Closter, *Austin;* Hudson City, *Ruger;* N. Y.—**P. pusilla**, Nutt.; Bloomingdale, *State Flora;* Break-neck Hill, 8th Ave., *O. W. M.;* Ravenswood, L. I., *Allen*; Ocean Co., N. J., *Austin.*

PLUMBAGINACEÆ.

STATICE, Tourn.—**S. Limonium**, L.: Var. **Caroliniana**; common in salt marshes; N. Y.

PRIMULACEÆ.

TRIENTALIS, L.—**T. Americana**, Pursh; common; rare at Closter, *Austin.*

LYSIMACHIA, Tourn.—**L. thyrsiflora**, L.; in salt marshes near N. Y., *Pursh;* Hackensack marshes; Glen Cove, *Coles*.—**L. stricta**, Ait.; common; N. Y.—**L. quadrifolia**, L.; common; probably on N. Y. Island, though not reported.—**L. vulgaris**, L.; naturalized on and near Flatlands road, L. I., *Ruger*, and near Peekskill, *W. H. L*.—**L. ciliata**, L.; common; N. Y.—**L. lanceolata**, Walt.; not rare at Closter, *Austin;* Staten Island; Yonkers, *Pooley:* Var. **hybrida**; Newark meadows, *Torr. Cat*.—**L. nummularia**, L.; old gardens; 152nd St. next to Trinity cemetery; road sides, Staten Island, Peekskill, *W. H. L.;* Tarrytown, *Hall.*

ANAGALLIS, Tourn.—**A. arvensis**, L.; not uncommon, particularly on sandy soil; N. Y.; occasional about Brooklyn, *Merriam;* grows finely in the white sand at Ocean port, N. J., *Ruger*; about west end of Erie tunnel, *Austin.*

SAMOLUS, L.—**S. Valerandi**, L.: Var. **Americanus**, Gray; common; N. Y.

HOTTONIA, L.—**H. inflata**, Ell.; Closter, common, *Austin;* Fort Lee, *W. H. L.;* Westchester Co., *Mead in State Flora.*

LENTIBULACEÆ.

UTRICULARIA, L.—**U. inflata**, Walt.; stagnant waters in N. J., *Eddy in Torr. Cat.;* Ponds on Long Island, *State Flora.*—**U. vulgaris**, L.: Var. **Americana**; common.—**U. minor**, L.; probably on L. I., vid. § 33.—**U. clandestina**, Nutt.; Tottenville, Staten Island, *W. H. L.*—**U. intermedia**, Hayne; Closter, common, *Austin.*—**U. striata**, Le Conte; N. Y., *Le Conte;* L. I., *Willis, both in State Flora.*—**U. gibba**, L.; Closter, common, *Austin;* near the Passaic at Woodside, *W. H. L.;* Woodhaven, L. I., *Ruger;* East Hampton, *Allen;* West Hampton, *Merriam.*—**U. purpurea**, Walt.; near N. Y. in N. J., *State Flora;* in small ponds back of Ridgewood Cemetery, L. I., covering the water in masses resembling blue violets, *Mr. G. B. Brainerd.*—**U. cornuta**, Michx.; Centreville, L. I., terminus of Centreville Ave., *Ruger;* L. I., *Hall.*

BIGNONIACEÆ.

TECOMA, Juss.—**T. radicans**, Juss.; well established on the south shore of Staten Island, *W. H. L.*

CATALPA, Scop., Walt.—**C. bignonioides**, Walt.; common in cultivation; Central Park, *R. & P.;* spontaneous in many parts of L. I., *Merriam.*

OROBANCHACEÆ.

EPIPHEGUS, Nutt.—**E. Virginiana**, Bart.; common.

CONOPHOLIS, Wallroth.—**C. Americana**, Wallroth; Bloomingdale, Long Island etc., *Torr. Cat.;* Bergen Point and Chatham, N. J., *W. H. L.*; Closter, common, *Austin.*

APHYLLON, Mitchell.—**A. uniflorum**, Torr. & Gray; not uncommon; N. Y.

SCROPHULARIACEÆ.

VERBASCUM, L.—**V. Thapsus**, L.; very common; N. Y.—**V. Blattaria**, L.; very common, both colors; N. Y.

LINARIA, Tourn.—**L. Canadensis**, Spreng.; common; N. Y.—**L. vulgaris**, Mill.; too common; N. Y.; the Peloria form at Gravesend, L. I., *W. H. L.;* found by *W. R. Gerard* at Poughkeepsie, in 1868, with two, three, and five spurs.—**L. genistifolia**, Mill.; used to be found in the upper part of N. Y., but the station has long been destroyed; a single specimen was gathered years ago in South Brooklyn, and Mr. Caverley communicated to Dr. Allen a specimen from Queens Co., where it may perhaps be rediscovered.

SCROPHULARIA, Tourn.—**S. nodosa**, L.; common; N. Y.; scarce at Closter, *Austin.*

CHELONE, Tourn.—**C. glabra**, L.; common; N. Y.

PENTSTEMON, Mitchell.—**P. pubescens**, Solander; Brooklyn, *Allen;* abundant near Pompton; Preakness, *Fischer;* Palisades; Yonkers, *Pooley;* Closter, *Austin;* along Central R. R. of N. J., Bergen Point, *W. H. L.*

MIMULUS, L.—**M. ringens**, L.; common; N. Y.—**M. alatus**, Ait.; Bloomingdale, *Torr. Cat.;* and not uncommon, though less abundant than the former; my impression is that it prefers wetter situations, *W. H. L.*

GRATIOLA, L.—**G. Virginiana**, L.; common; N. Y.—**G. aurea**, Muhl.; abundant in sandy swamps, L. I.; New Jersey, *Torr. Cat.*

ILYSANTHES, Raf.—**I. gratioloides**, Benth.; common; N. Y.

LIMOSELLA, L.—**L. aquatica**, L.: Var. **tenuifolia**, Hoffm.; Long Branch, *Torr. Cat.;* Passaic River, Woodside etc.; Peekskill; New Bridge, N. J., *Austin.*

VERONICA, L.—**V. Virginica**, L.; not uncommon; L. I., near Greenpoint, and at Richmond Hill, S. S. R. R., *Ruger;* Staten Island; Chatham, N. J.; Peekskill; on Staten Island it grows finely in brackish swamps, also in wet meadows at Chatham, N. J., *W. H. L.*—**V. Anagallis**, L.; creeks and ditches, N. Y., *Torr. Cat.;* along the Erie R. R., from Piermont to Sufferns, very common also in Orange Co., but does not occur about Closter, *Austin;* N. R. R. of N. J., Tappan, *W. H. L.;* Nyack, *Merriam.*—**V. Americana**, Schweinitz; common on L. I., *Ruger;* Yonkers, *Pooley;* Nyack, *Merriam;* Palisades; Closter, common, *Austin;* Chatham, N. J.; N. Y.—**V. scutellata**, L.; rather common; New Jersey; Staten Island; Connecticut, *Ruger.*—**V. officinalis**, L.; common; but scarce about Closter, *Austin;* N. Y.—**V. serpyllifolia**, L.; common; N. Y.—**V. peregrina**, L.; common; N. Y.—**V. arvensis**, L.; common; N. Y.—**V. agrestis**, L.; gravelly fields, *Torr. Cat.;* Brooklyn, *Merriam.*—**V. hederæfolia**, L.; Brooklyn, *State Flora;* abundant on Palisades.

GERARDIA, L.—**G. purpurea**, L.; common; N. Y.—**G. maritima**, Raf.; common; N. Y.—**G. tenuifolia**, Vahl; common; N. Y.; white var. at South Amboy.—**G. flava**, L. partly; common; N. Y.—**G. quercifolia**, Pursh; Harlem River, N. Y., *W. H. L.;* Morristown, N. J., *W. H. L.;* Closter, common, *Austin;* Furman's Island, L. I., *Ruger.*—**G. integrifolia**, Gray; N. J., *Austin.*—**G. pedicularia**, L.; Long Island; Staten Island; N. Y.? Hohokus, N. J., rare, but common in Orange Co., *Austin.*

CASTILLEIA, Mutis.—**C. coccinea**, Spreng.; Astoria, *W. H. L.;* Glen Cove, *Coles;* in boggy meadows, *Torr. Cat.;* Staten Island, *Le Roy;* Closter, common, *Austin;* Chatham, *W. H L.*

PEDICULARIS, Tourn.—**P. Canadensis**, L.; common; N. Y.—**P. lanceolata**, Mchx.; Maspeth, L. I., *Ruger;* Astoria, *W. H. L.:* Brooklyn, and Hackensack meadows, *Torr. Cat;* Closter, common, *Austin;* Chatham, N. J., *W. H. L.;* not uncommon in Westchester Co.

MELAMPYRUM, Tourn.—**M. Americanum**, Michx.; common; N. Y.

ACANTHACEÆ.

DIANTHERA, Gronov.—**D. Americana**, L.; Staten Island, *Le Roy.*

VERBENACEÆ.

VERBENA, L.—**V. angustifolia**, Mchx.; Hoboken, *Torr. Cat.;* abundant at Passaic Falls, *Merriam*; Canarsie, rare on L. I., *Merriam;* Closter, common, *Austin;* Red Bank, N. J., *W. H. L.;* Long Branch, *Ruger;* N. Y., *State Flora.*—**V. hastata**, L.; common; N. Y.; Closter, scarce, *Austin.*—**V. urticifolia**, L.; common; N. Y.—**V. stricta**, Vent.; *Le Roy;* Central Park, *R. & P.*—**V. officinalis**, L.; "Borders of fields about Bergen, N. J.," *Torr. Cat.;* Barrens of N. J., and Suffolk Co., L. I., *W. H. L.;* suburbs of N. Y., *State Flora.*

PHYRMA, L.—**P. Leptostachya**, L.; common; N. Y.; not common on the south side of Long Island, *Merriam.*

35. **Note on Hottonia inflata**, Ell.—This is a rare plant in the neighborhood of New York. The nearest place to the city in which I have observed it is near Bull's Ferry, in a swamp on the road-side, about five miles from Hoboken. From no part of the State of New York have I received it, except from West Chester County, where it occurs in several ponds: but Mr. Vasey has found it near Dexter, in Jefferson County. Farther south, and in some of the western states, it is more common; but it has not, to my knowledge, been found west of the Mississippi River.

Until the present season I have not had an opportunity for examining this plant in a living state. About three weeks ago I found it growing in ditches near Carrieville Station, on the Northern Railroad of New Jersey, 21 miles from Jersey City. It was just commencing to throw up its scapes; in which state I removed a number of specimens and placed them in a glass vase of water, so that I had an opportunity of watching their development in my study. The scapes have grown to the height of four or five inches, and have produced numerous whorls of flowers. The corolla is scarcely more than a line and a half in length, and its border never expands. At a very early age, when the flower-buds are barely formed, fertilization takes place, and the corolla is detached from its base by the enlargement of the ovary, on the summit of which it remains, like a little cap, until the fruit is mature. Fertilization must take place without any aid from without, for the corolla does not open, the stamens and pistil being closely shut in, and the anthers being directly in contact with the stigma.

In the *H. palustris* of Europe the flowers are many times larger than in our plant, and the scapes are not at all inflated. There are also many other points of difference.

It is remarkable that this curious plant, which has been known more than half a century, has never been figured in any botanical work.

Columbia College, New York, June 6, 1871. JOHN TORREY.

36. **Notes by J. S. Merriam.**—I lately found within the grounds of Prospect Park, but in a portion not yet *improved* (?)—

Ranunculus multifidus, Pursh, growing in abundance. It is in a small pond to the west of the main drive, and a short distance south of the late residence of Mr. Litchfield.

Nasturtium Sylvestre, R. Br., grows on the border of the same pond in great luxuriance, and there is enough for all the herbariums in the country.

Arethusa bulbosa, L., can be found in the marshes of New Lots, about a mile south-east from East New York.

Pogonia verticillata, Nutt., was brought to me by Mr. G. B. Brainerd, also from New Lots, but gathered in the woods a little south-east from the Ridgewood engine-house.

Archemora rigida, DC., I observe was not reported in the Bulletin, from Long Island. It grows from Babylon along the south shore of the Island to Canarsie.

Can you tell me where I can find in this vicinity *Acer macrophyllum*, or *A. circinatum?* *A. campestre*, the only maple indigenous to England, I was very glad lately to find in Central Park.

A friend tells me that on a recent R. R. trip in Massachusetts, he saw the boys enter the cars with bunches of *Arethusa bulbosa* for sale at 10 cents a bunch.

J. S. M., 327, Clermont Ave., Brooklyn, June 13.

37. **Notes by M. Ruger.—Geranium pusillum,** L., Maspeth, on Cooper Ave., south of the old Flushing Rail Road; and Locust Ave., near South Side R. R.

Sedum ternatum, Mchx., grassy bank near West Flushing.

Chenopodium glaucum, L., grows in Flatbush, along East New York Ave. At the entrance to the "piggery," opposite the rear of Flatbush Hospital, it grows in abundance.

38. **Notes by Rev. S. Lockwood.**—Last June, I discovered and gathered fine specimens of **Helonias bullata,** L., near Freehold, N. J.; also in October, 1869, I found and collected beautiful specimens in fruit of the Climbing Fern, **Lygodium palmatum,** Swartz. These last were not very far from Keyport, N. J. S. L., Freehold, N. J., June 5th.

39. **Notes by I. Coles.**—I collected a specimen of **Viola pedata,** Var. **alba,** in Suffolk Co., this spring. The variety with two dark purple petals and yellowish eye or centre grows quite plentifuly some six ‸l miles south of this place. I also found, this spring, for the first time, the **Trillium erectum,** L., in a swamp about three miles east of Glen Cov I. C., Glen Cove, June 12th.

40. **Notes by I. H. Hall.—Plantago Virginica,** L., I have found in some considerable quantity at Weehawken; also some at High Bridge in Westchester County; also at East Chester, and in Connecticut. **Lysimachia thyrsiflora,** L., in fresh water at, or near Hall's Corners, between Tarrytown and White Plains, and I have an indistinct impression that I found it elsewhere in the vicinity. Also at South Norwalk, Connecticut. (It is common enough in Central N. Y.) **Anagallis arvensis,** L., I have found very common in East Chester and on Throg's Neck, and places near; and quite as often by the dusty roadside as anywhere else. It grows in such places frequently from New York as far East as I have been, and also as far along New

Jersey as I have been. At Long Branch it is fine and plenty. I have seen a spontaneous *Catalpa* or two on Staten Island, and a number in Westchester County. The roadsides near Throg's Neck are frequently set with Catalpas for shade—many of which trees are very old indeed. By the way the finest Copper Beech, probably, in the country, grows at Throg's Neck, on the grounds of Mr. Van Schaick. It is enormous in size, very beautiful and graceful in shape, of charmingly colored foliage. I do not know its dimensions or its age ; but I think the diameter of the trunk at the height of a man's head must be six feet. If you are ever up there, it is worth visiting and measuring. I. H. H., 36 Pine St., May 31st.

41. **Amelanchier Canadensis,** Torr. & Gray.—Mr. E. S. Miller, of Wading River, L. I., has sent us a variety of this plant with petals colored red. The specimen sent was gathered in Massachusetts in 1867, but Mr. M. has observed a similar coloring this spring in plants on Long Island.

42. **Viola rostrata,** Pursh.—A friend suggests that no insect with long proboscis is needed to fertilize this flower, and sends us specimens of *Dicentra spectabilis* with the spurs slit by the Humblebees to get at the nectar. We have observed the same operation in the case of the Lilac, but both these plants are exotics, and the bees and the flowers have not been developed in adaptation to each other. We suppose that some night flying moth with suitable proboscis feeds on the honey of this violet, and that the rarity of the moth in this district occasions the rarity of the flower. The seed capsules we noticed were not as well developed as in other more common violets.

43. **New Stations.—Galium boreale,** L., and **Phlox pilosa,** L.; grow freely just back of the brick-yard near Chatham Station, on the Morris and Essex R. R.—**Kalmia latifolia,** L., in the woods on the Coney Island Horse R. R., along with the varieties of violet referred to in the last number.—**Rosa micrantha,** Smith, seems abundant along the roads about Yonkers.

44. **Erratum.**—In last No., § 30, Herbarium suggestions, line 20, for "18 × 20," read "18 × 12," for size of compartments.

45. **Aspidium fragrans,** Swartz.—In Vol. I., page 432 of the "American Naturalist," (well deserving of its name,) Mr. H. Willey reports finding this species at Berlin Falls, N. H. We recur to this discovery now, when the season approaches for excursions to the mountainous region in the north of this state, in hopes that, by directing attention to it, we may lead some of our friends to detect it within our borders. A correspondent wrote us last winter, that a friend had found a fragrant fern last summer in New Russia, Essex Co. We did not learn that any specimens had been preserved. We hope our correspondent will be able to get more precise information on the subject this year, and, if possible, procure us a specimen.

Terms—One dollar for one copy; five dollars for seven, and half a dollar for every additional copy, per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

46. **Silene inflata**, Smith; **Cucubalus Behen**, L.—This species of Silene presents an interesting case of dimorphism. It produces two kinds of flowers on different plants, both of which are fertile, but with the peculiarity that one of the forms is pistillate only.

In the latter the styles, which are usually tipped with pink, protrude at an early stage of the flower, and finally attain nearly double the length of the calyx. The petals and calyx are smaller than in the other form, the latter more exactly ovate, as Linnæus describes it, and its color, whether green or mottled, is duller. The base of the styles forms a disk on the top of the ovary in both cases, but in the pistillate plant this is more prominent, giving it when mature an elongated ovate form, whereas that of the staminate plant is more exactly ovate, just the opposite to the relation of the calyces. It is this disk which splits into the six teeth by which the capsule opens. The number of styles is commonly three; in three cases, however, I found four styles, and once, only two. If we open the calyx of a well advanced flower, we find the ovary surrounded to about half its height by ten abortive stamens, but at an early stage of the flower these stamens will be found to be perfectly formed. As the pistil must be fertilized from without, we may suppose, with Darwin, that it matures vigorously and exhausts the support which would otherwise go to the stamens; whether they have a hereditary taint, I am unable to state, but it is probable; the point might be determined by destroying the styles at their first appearance. Gärtner, as quoted by Darwin *(Plants & Animals under Domestication, page 166, Eng. ed.)*, ascribes such *tabescence* in Silene to an inherent tendency to become diœcious. I have not had the original to consult. Let us hope that some day New York may possess a Botanical Library: we have a fine foundation in Dr. Torrey's.

In the other form of flower there are ten stamens and three styles. The five outer stamens, alternating with the petals, are the first to elongate, and when the petals open attain the length of the styles in the flower which is pistillate only, and then open and discharge their pollen. At this stage of the flower the five inner stamens, which are opposite to and adhere by their bases to the claws of the petals, occupy with the styles of the same length the throat of the corolla. They do not, however, seem to discharge their pollen, till they and the styles have overtaken the other anthers. The anthers are attached by a point only, are introverse, and soon drop off, whether by the action of the wind or insects. The split of the anthers and the tops of the filaments are usually pinkish; in the majority of cases the young ovary is a deep pink, a color which it afterwards in a great measure loses; the ovary of the pistillate form is generally green, but I have seen the cases reversed. The calyx of the staminate flowers is generally readily distinguished by a brighter pink.

Except in size the bi-lobed petals of both kind of flowers are nearly alike, perhaps the shoulders of the claws in the staminate form are broader in proportion, and the claws in general more specialized in form, both being moulded to the young stamen. In the half opened flowers the claws overlap in front of the petals, presenting something like a crown. The lobes are of a thicker texture than the claws, and of a dead white color, whereas the claws are translucent : the two are readily pulled apart. In the young petal a strong midrib seems to pass through the base of the claw from front to back and thence to run up to the lobes, where it branches variously, but the only other nerves of the claw are two faint ones continued up near the outside margin of the lobes. At the top of the claw, from the bilobation of the petal, is a pretty deep groove, marked at its commencement by two strong convexities, which have probably been mistaken for the crown of the petals as they have no other. I am satisfied that these are only convexities of the claw, the tissue being thin, and the concavities on the opposite side manifest. I have gone into these details, as I think this structure throws light on the question of the origin of the crown in Silene. In the staminate flowers there is a pink nectariferous spot, more or less conspicuous, where the lobes meet the groove.

The duller color of the pistillate form, and the somewhat greater predominance of the family pink in the other, may perhaps be explained by reference to wind and insect agency. The nice taste of insects for color can have escaped no one who has attended to the fertilization of flowers. There are some broad views on this subject in the admirable article in the American Naturalist for July, translated by R. L. Packard from Müller and Delpino.

It would be interesting to compare the average number and weight of the seeds of the two kinds of capsules, and also to watch how the agency of insects is employed in the fertilization. I have not had the opportunity of doing this myself, being indebted to my friend Mr. Le Roy for supplies of the flower. It is abundant in some parts of Westchester Co., and the two kinds grow in company.

I have not been able to find any notice of the dimorphism of this plant, later than Linnæus, who (*Spec. Plant. Ed.* 3.) after describing Cucubalus Behen, has these words :

"*Varietas feminea in Horto upsaliensi frequens. Hæc Hermaphrodito minor. Calyces exacte ovati, magis obscuri nec oblongo-ovati. Corolla minor. Stamina corolla dimidio breviora terminata tuberculo absque antheris. Styli 3–5 corolla longiores declinati. Planta utraque fertilis.*"

The only other instances of dimorphism that I can recall occur in Lythraceæ, Rubiaceæ and Primulaceæ, with a tendency to it in Polemoniaceæ. All these orders, including Caryophyllaceæ, have generally opposite or whorled leaves. Having formed a theory, which was strengthened by this consideration, I thought the Gentian family a suitable one to investigate for other examples. In looking over my not very extensive collection I was fortunate to find in Menyanthes trifoliata, L., a decided case of dimorphism, though the style in all the flowers finally becomes much elongated. The fact is of interest, but the theory halts, for Menyanthes belongs to the section of Gentianaceæ with alternate leaves.

W. H. L.

47. **Linnæa borealis**, Gron.—You remember the doubts about the plant which I found at Babylon, L. I., in 1868, and which I have insisted was Linnæa. Well, while I was at Crown Point, I came upon the same plant, but there were no flowers. After considerable

search I found the fruit, and, at last, one withered and dried bell which had not fallen. There was no longer a doubt as to this plant at least; and, in the study I gave it there in the woods, it was easy to see what had occasioned it as to the specimen from Babylon. That consisted of the ends of the summer runners only. I compared the plants on my return, and was fully convinced there could be no mistake.

I determined, therefore, to go to Babylon and see if I could find the plant, knowing nearly the locality in which I had found it three years ago. I went yesterday. The locality was considerably changed by the cutting away of the woods along the rail-road (South Side R. R.). I hunted for three hours the place over; in the wood and out of it; around the stumps, under the brush and bushes, in the sun and in the shade. When I failed to find it, I took "a new departure" where it *seemed* to have been, with no better success. I found plenty of *Arctostaphylos Uva-ursi*, *Chimaphila umbellata* and *C. maculata*, *Gaultheria procumbens*, and *Cypripedium acaule*—but no Linnæa. I had at length about abandoned all hope of it, and concluded that it had died out with the cutting away of the woods, when I struck upon a few scattered plants. You may imagine my satisfaction! Down on my knees I went, and searched for the fruit like a miner for nuggets. I struck upon the little forked scapes—but no fruit. I soon, however, traced it to the bed where it has taken possession of the ground, like *Nepeta Glechoma*, almost to the exclusion of all other plants. It covers a space 50 feet square, and, of course, there I found the fruit, and, at last, under some bushes, in the shade, one little scape with its two beautiful, blushing bells, fresh and fragant, rewarded my search.

I mention this, not only because I think you may feel a *personal* interest in the finding, but as showing how very local a plant may be, for Dr. Torrey thinks it has never been seen elsewhere on the island, and even in the New Durham swamp it is supposed to have been placed by Michaux. It gives hope, also, that we may yet find *Corema Conradii*, *Clitoria Mariana*, and some other plants which were long ago reported, but have not since been found on the island. They will be met with only by long search, or be come upon by accident. Knowing, as I thought, just where to find this, I hunted three hours for it, and was about giving up the search, when I fell upon it.

It is about 70 feet north of the rail-road and 900 feet east of the lane. July 14th, J. S. M.

48. **Tetramerism in Tradescantia.**—Early in June, I noticed with much interest a fourparted flower on a bush of Tradescantia Virginica, in my little city garden. The bush was very vigorous, and bearing profusely. I pressed this flower at once, and then began to watch for more. About a week later, another one appeared on the bush; and in order the better to examine the ovary, I allowed this one to remain two or three weeks. Both these flowers had four sepals, four petals, and eight stamens, a perfect example of tetramerism, as far as the ovary. This I could not judge of in the pressed specimen; but, on examining the other when it had somewhat matured, I

found two of the typical three cells well developed, and each containing one large ovule. The third cell was dwarfed, and had two ovules certainly, of small size : there may have been other rudimentary ones, but not distinct enough to be made out with a good magnifying glass. I had hoped to find four cells, so as to have the tetramerism quite complete ; but in this expectation I was disappointed, partially at least.

The incident is perhaps worth recording, as the spiderwort is usually such a regular and typical trimerous flower.

D. S. Martin, 236, W. 4th St., July 12th.

49. **Aspidium fragrans**, Swartz,—does grow in our state. Two years ago I found a few specimens of it on the rocky precipices at Lake Avalanche in Essex County. It is not improbable, therefore, that it occurs at New Russia.

I intend visiting the Adirondack region again soon, and hope to find more of it. **Woodsia glabella**, R. Brown, another rare fern with us, also occurs there. Chas. H. Peck, Albany, July 6th.

50. **New Stations.**—**Ægopodium podagraria**, L., seems to be pretty well established at Guttenberg.—**Geum strictum**, Ait., and **Erigeron Philadelphicum**, L., grow on Long Hill, N. J.—Dr. Pooley has sent us **Diospyros Virginiana**, L., from Yonkers.—We gathered in a swampy meadow at New Lots, in May, what we take to be **Rhyncospora fusca**, Rœm. & Schultes. We have little doubt of its identity though the plant was only in flower.

51. **Corrigenda.**—§ 38, read "Fern" for "Form"; § 39, read "plentifully".

LABIATÆ.

TEUCRIUM, L.—**T. Canadense**, L.; common along shores ; N. Y.

TRICHOSTEMA, L.—**T. dichotomum**, L.; common ; N. Y.

MENTHA, L.—**M. rotundifolia**, L.; Bloomfield, N. J., and near Hudson Station, N. R. R. of N. J., *W. H. L.*—**M. viridis**, L.; common.—**M. piperita**, L.; less common, but not rare ; these two mints are not reported from N. Y. Island, but probably grow there.—**M. aquatica**, L.: Var. **crispa**, Benth.; near Greenwood Cemetery on Coney Island R. R.; Pamrapo, on Bergen Point ; and near Lake Mohegan, Westchester Co.; also in Orange Co. It is singular that this well marked variety, which seems not uncommon, should not have been noticed before. *W. H. L.*—**M. Canadensis**, L.; common ; N. Y.: Var. **glabrata**, Benth.; "wet meadows, among bushes," *Torr. Cat.;* New Jersey, *W. H. L.*—*M. arvensis*, L., and *M. sativa*, L., are also reported, but with more or less of uncertainty, and are probably not established.

LYCOPUS, L.—**L. Virginicus**, L.: Var. **macrophyllus**; common ; N.Y.; plant intensely bitter, *Austin ;* less common than the next, and not reported from Long Island, yet probably grows there.—**L. sinuatus**, Ell.; common ; N. Y.

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PERILLA, L.—**P. ocimoides**, L.: Var. **crispa**; Train's Meadow road, L. I., *Ruger;* also escaped to road side near Huguenot, S. I., but can hardly be considered as established there, *W. H. L.;* Peekskill, *Le Roy.*

CUNILA, L.—**C. Mariana**, L.; Staten Island and Weehawken, *Torr. Cat.;* Palisades, rare near Closter, *Austin;* Snake Hill, etc., N. J.; Glen Cove, *Coles;* not uncommon in Westchester Co.

PYCNANTHEMUM, Mchx.—**P. incanum**, Mchx.; Manhattanville, *Torr. Cat.;* Yonkers, *Pooley;* Palisades; Closter, common, *Austin;* Long Hill, N. J., *W. H. L.;* Suffolk Co., L. I., *W. H. L.;* common in southern part of the State, *State Flora.*—**P. clinopodioides**, Torr. & Gray; Closter, common, *Austin;* Kingsbridge, *State Flora;* Tarrytown, *Hall;* Inwood, *Denslow;* Central Park, *R. & P.*—**P. Torreyi**, Benth.; Palisades, *Austin;* Kingsbridge, *State Flora;* Inwood, *Denslow*—**P. muticum**, Pers.; Weehawken, *Torr. Cat.;* Long Island, *Dr. Mitchill, in Torr. Cat. but not in State Flora;* Bergen Point, New Durham, etc., *W. H. L.;* Closter, common, *Austin;* Tarrytown, *Hall.*—**P. lanceolatum**, Pursh; common; N. Y.; plant with the odor of Pennyroyal, *Austin.*—**P. linifolium**, Pursh; common; not reported from N. Y.; plant scentless, *Austin, ?*

ORIGANUM, L.—**O. vulgare**, L.; N. Y.; Fordham; Yonkers, *Pooley;* Weehawken.

THYMUS, L.—**T. serpyllum**, L.; Long Hill, *W. H. L.;* Morris Co., *Austin;* near Woodside, L. I., *Ruger.*

CALAMINTHA, Mœnch.—**C. Clinopodium**, Mœnch; N. Y.; Closter, common, *Austin;* Westchester Co., *W. H L.;* Long Island, *Torr. Cat.;* not uncommon.

MELISSA, L.—**M. officinalis**, L.; not uncommon; Inwood, *Le Roy;* Yonkers, *Pooley;* Glen Cove, *Coles;* Staten Island, Bergen Point etc., *W. H. L.;* not in *Torr. Cat.*

HEDEOMA, Pers.—**H. pulegioides**, Pers.; common; N. Y.

COLLINSONIA, L.—**C. Canadensis**, L.; common; N. Y.

SALVIA, L.—**S. lyrata**, L.; "In sandy fields, N. J.", *Eddy in Torr. Cat.;* Red Bank, N. J., *W. H. L.*

MONARDA, L.—**M. didyma**, L.; Nyack, and about old gardens, *Merriam.*—**M. fistulosa**, L.; Yonkers, *Pooley;* Woods, N. J., *Torr. Cat.;* roadsides, Babylon, *Merriam.*—**M. punctata**, L.; common on Long Island, *State Flora;* South Amboy, Red Bank etc., N. J.

LOPHANTHUS, Benth.—**L. nepetoides**, Benth.; Washington Heights, *J. W. Wood;* Flushing, *Prince in Torr. Cat.;* Coney Is. R. R., City Line, *Congdon;* Glen Cove, *Merriam;* not uncommon on Long Island, *Ruger;* Central Park, *Ruger;* Hoboken and Weehawken, *Austin.*—**L. scrophulariæfolius**, Benth.; Weehawken and Hoboken, *Austin;* Kingsbridge, *W. H. L.*

NEPETA, L.—**N. Cataria**, L.; very common; N. Y.—**N. Glechoma**, Benth.; common.

PHYSOSTEGIA, Benth.—**P. Virginiana**, Benth.; Central Park; *R. & P.;* Yonkers, *Pooley;* near Flushing, *Allen.* I have seen it in the neighborhood of Break-neck Hill and the Harlem River, and have had it brought me, as growing wild, from Staten Island, but I am not sure that these plants were other than waifs, *W. H. L.*

BRUNELLA, Tourn.—**B. vulgaris,** L.; very common; N. Y. [Prof. Goodale, *Amer. Naturalist, July,* 1871, thinks *Ajuga reptans,* L., may sometimes be mistaken for this plant.]

SCUTELLARIA, L.—**S. pilosa,** Michx.; Long Island, Staten Island, New Jersey, rather common; rare about Palisades, and Closter, *Austin.* —**S. integrifolia,** L.; in Newark meadows, *Eddy in Torr. Cat.:* common at Closter, *Austin;* also on Staten Island, and Long Hill, N. J, *W. H. L.;* Long Branch, *Ruger;* Babylon, *Merriam;* Yonkers, *Pooley.*—**S. galericulata,** L.; Long Island, *Torr. Cat., Coles, Ruger;* Weehawken, New Durham Swamp, *W. H. L.;* Closter, scarce, *Austin;* Central Park, *R. & P.;* Yonkers, *Pooley.* —**S. lateriflora,** L.; common; N. Y.

52. **Lolium perenne,** L.—Within a few years this grass seems to have become quite common. Nearly all the door yards on Murray Hill, at least, contain more or less, and many are completely filled with it. The awnless variety is in the minority decidedly: my own front area came up thickly with the awned variety. The glume is not awned and only equals the lowest flower in length: the lower paleæ are all awned, the awns varying from a mere point to the length of the flower. The spikelets contain a variable number of flowers, 5—10, 7 being the average.

It would seem from the description that the length of the glume is the only distinguishing mark between *L. temulentum* and *L. perenne.* The grain of *L. temulentum* has been reputed poisonous, but, according to H. Wagner, this is now contradicted by German authors, who state that it is harmless, and that its supposed poisonous properties depend on ergot that gets mixed with the grain. T. F. ALLEN.

53. **White Strawberry.**—During a recent visit to the southern Adirondack region, I noticed the white strawberry of which I send you a small specimen. It was past the fruiting season, and I found only two or three berries, but was told by people living in the vicinity that they had gathered a few quarts of the fruit this summer. It was stated, also, that the berries were larger than the common red strawberry.

The plant is easily recognized by the eye when growing among *F. Virginiana,* Ehrhart, being of a yellow-green hue, with the ripened leaves bright yellow, while F. Virginiana has foliage of a blue or purple-green ripening to a bright dark red. The new variety is found mostly near to but not in the woods, and appears to be of a shy and timid character, and in danger of being overrun and choked out by the rampant "Reds."

I have never before seen the common red strawberry in such aggressive abundance as in the locality visited by me. It forms a thick turf over acres of land, to the exclusion of almost all other vegetation except the red raspberry, which seems to be struggling with it for the possession of the soil. *Fragaria vesca*, L., occurs in the woods, and I was told of another variety with peculiar *pink* berries, but saw none of the plants.

I do not find mention of this var. of Fragaria in the latest edition of Gray's Manual. Brattleboro, Vt., Aug. 9, A. E. Brown.

We take this interesting plant to be a var. *alba* of *F. vesca*, L. It is desirable to have more complete specimens of this and also of the pink berried form. The locality mentioned by Mrs. B. is "Bennett's Farm, 13th Pond, Warren Co., N. Y." What is the color of the foliage, fresh and ripened, of *F. vesca?* Eds.

54. **Notes by I. H. Hall.**—On the 22nd of June, Mr. J. H. Redfield, Mr. C. F. Parker, and myself, took an excursion into the pine barrens of New Jersey, and found, about a mile and a half from Atco, a very large and unusual station of *Helonias bullata*, L. It grows there in clusters and singly, and, to all appearance, extends a long distance in the swamp, and exists in unlimited quantity. Mr. Parker, who is thoroughly conversant with most of the pine barren region, and probably with all the known stations of Helonias therein, has seen none at all comparable with this. Of course it was past flower.

Near the same place we found *Nymphæa odorata*, Ait., growing in wet or overflowed sphagnum, in a uniformly dwarfed state, the leaves being from two to three inches and a half in diameter and the flowers reduced in size to correspond. There was nothing unsymmetrical, imperfect, or unhealthy about the plants, however, and for a large space we saw none of the normal size. [This is Var. *minor*, Sims, and seems to be the prevailing form in the Pines. Eds.]

We also found abundantly; *Œnothera sinuata*, L., *Verbena angustifolia*, Mchx., *Danthonia sericea*, Nutt., &c. Verbena angustifolia I have also found in abundance at Jamaica, L. I., but not, by any means, as large or as flourishing as in the Pines.

As to the state of advancement of vegetation at the time, we found *Magnolia glauca* rather past its perfection but with still plenty of fresh flowers and buds; *Kalmia latifolia* and *K. angustifolia* rather past but very full flowered; *Andromeda Mariana* well and fully out; *A. ligustrina*, out but a little behind the other; *Xerophyllum*, rather past; *Calopogon* and *Pogonia ophioglossoides*, in perfection, as well as *Drosera linearis* and the various forms of *Œnothera fruticosa*. I found one lingering *Leiophyllum* in flower.

55. **New Stations.**—**Mentha rotundifolia**, L., near Richmond village, Staten Island, on the road from New Dorp. *Merriam.*—**Desmodium viridiflorum**, Beck, between East New York and Canarsie at the crossing of Fresh Creek, and in an open bushy field half a mile nearer to Canarsie, *Merriam.*—**Arctostaphylos Uva-ursi**, Spreng., and **Polygala cruciata**, L., Tottenville, Staten Island, where also **Diospyros Virginiana**, L., grows in the thickets and groves quite plentifully and apparently more spontaneously than I have seen it elsewhere in our vicinity. *W. H. L.*—**Mentha viridis**, L., and **Verbena angustifolia**, Michx., are to be found near Kingsbridge, the latter of the foot of the dolomite rocks. —**Tilia Americana**, L., var. **pubescens**, at Wading River, L. I., and **Potentilla recta**, Willd., at the Ridge, near Middle Islands. *E. S. Miller.*

56. Imitation.—We mentioned, § 86, Vol. I., the resemblance of the color of a yellow spider to that of the blossom in which it lay in wait. Another case of this kind has fallen under our notice. It is well known that in the centre of the white umbel of *Daucus carota*, L., there is generally one dark purple flower. In the latter part of July, we frequently found, lurking beneath this flower, a spider of very nearly its size and hue. At this season a spider of the same appearance is found there, but in a web. Perhaps there are two kinds of spiders, a web making, and a springing one. The weed is very common, and we commend the subject to our entomologists. The under side of cymes, corymbs &c. seems a favorite resort of flies and other insects. Secreta ?

57. Tetramerism in Lilium auratum, Lindl.—The case of tetramerism in *Tradescantia* reported by Prof. Martin in the last number of the Bulletin leads me to mention a similar instance in the Japan Lily (*L. auratum*, Lindl.). A plant in my garden has recently produced three flowers all of which were abnormal.

The first flower had but our divisions of the perianth, two outer and two inner, symmetrical and cruciform. The stamens were only four, alike and perfect. The ovary was quadrangular and *two-celled*, with 4 rows of seeds, and the hollow style preserved its quadrilateral character, until expanded into the stigma, which was distinctly trifid or three lined, being the only portion of the flower which showed any marks of trimerism. No rudiments of the 5th and 6th stamens could be detected.

The second flower had *five* divisions of the perianth—three outer and two inner—all somewhat twisted or distorted. The nectariferous portions strictly stellate in arrangement. Stamens 5 only and no rudiment of 6th visible. One of the 5 a little shorter than the remainder. In this case the ovary was *triangular* and *three-celled*, with the usual three lined stigma.

The third and last flower seems in all respects similar to the first, except that one of the four stamens is dwarfed and abortive.

Philadelphia, Aug. 7. JOHN H. REDFIELD.

58. Catalpas.—Your correspondent, Mr. Hall, alludes in the June number to catalpas growing wild on Staten Island and in Westchester Co. I would add that, on the 7th of July, I saw quite a little grove of them in full flower, at Hohokus, N. J., on the west side of the Erie R. R. They grow near, or along, a small brook which crosses the road just beyond the station. D. S. MARTIN.

59. We can now supply those who are deficient in the first four Nos. of Vol. I.—Correspondents would save us trouble by writing on only one side of their paper.

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

60. Herbarium Suggestions.—No. 3. *Collecting Specimens.*—For the collection of specimens, the botanist carries with him on his tramps, besides a strong knife or trowel, either a tin box (vasculum) or a portfolio containing folded sheets of thin paper in which to place the plants; indeed both the box and the portfolio are desirable.

The box will hold thick roots which he cannot on his trip find time to pare down, and fresh specimens for examination on his return home, but its capacity is limited.

A portfolio, on the contrary, will hold almost an illimitable number of specimens, and, moreover, will keep them in a fair state of preservation for a much longer time than one would naturally suppose. With two portfolios well stocked with paper, and a few driers interposed, we may make an excursion to the country occupying five days or a week, and, on returning home, find the contents but little injured by the delay.

The vasculum should be oval-cylindrical in shape, at least eighteen inches long, and with a door opening on one side. A small additional compartment opening at one end will be convenient as a lunch box, and also to contain water plants, nuts, acorns, land shells, or other objects of interest met with on the tramp. The portfolio should measure eighteen by twelve inches. It is best made simply of two stout sheets of pasteboard, not connected by a back or hinges, and covered with "enamelled cloth" to keep out moisture. To tie them together, I prefer a stout cord, or fishing-line, to india rubber bands or straps.

The young botanist soon learns that the collection of specimens does not consist in tearing off a flower with a portion of the stem and a few upper leaves. He finds it impossible to identify his species, in many cases, without having both the sterile and fertile flowers when the plant is monœcious or diœcious, also the mature fruit, the root leaves, and even the root, all of which are component parts of the complete plant and often essential to its recognition. In many cases, the fruit may be obtained from more advanced specimens at the same time as the flower; in others, it must be collected later.

When the plant is very large, it may be cut into sections, or the root leaves way be preserved separately with only a convenient portion of the upper stem, flower and fruit.

In collecting carices, the best way is to gather a number of specimens in a little package and pass the whole through slits in one or more pieces of paper to hold them together, in which shape they are to be dried.

Some water plants are so flimsy that it is necessary to float them out in water, and secure their shape by passing a sheet of paper under them, upon which they are dried and permanently retained.

For digging up roots, a stout clasp knife will answer. Some persons prefer a trowel with its blade narrowed by grinding it off.

Still more convenient is a tool shaped like a triangular dagger. Every body knows what a three sided saw file is. Buy one of the largest size; take it to a blacksmith and have the extreme half of the file bent in a gentle curve on one of its sides until the point is about one inch out of the true line ; grind off the teeth of the file ; retemper the blade ; put on a strong wooden handle, and get a leather case made for convenience of carriage.

Or, again, such an instrument may readily be made *de novo.* It should be, blade and handle included, about eleven inches long, and each side of the triangle where the blade joins the handle seven-eighths of an inch wide. Some of the advantages of this narrow but strong instrument are that it will follow the roots we wish to extract without cutting them, and into crevices of rocks where a broader tool could not be inserted or would be liable to break. It was the favorite instrument of that eminent botanist, Philip Barker Webb, in his Alpine excursions. [See Collector's Handbook, by the Rev. W. W. Spicer, M. A., London, 1869, p. 158.]

In the accompanying wood-cut, the blade is not quite enough curved. F. J. B.

61. Note from Dr. Engelmann.—I have now had Prof. Wood's specimen of *Opuntia* from Westchester Co., one from New Jersey sent by Mr. Meehan, and a third from New England, probably Massachusetts, furnished by Prof. Gray, side by side in cultivation with our Missouri and Illinois *O. Rafinesquii.* It is certainly less spiny, and sometimes the flower is smaller than in our plant, but the deep green colour, the long spreading leaves, and the bright brown bristles, especially on the older joints, on which they increase in number and length to considerable bunches, are characteristic of the plant. With them I have growing the true *O. vulgaris* sent by Dr. Schott from the banks of the Potomac and probably not found north of Chesapeake Bay, with thicker light green joints, shorter, thicker, more adpressed leaves, and small bunches of short thin greenish yellow bristles. This is the plant which is cultivated in Europe under that name and has become naturalized in Northern Italy and which I have described and figured as such in Vol. 4, Pacif. R. Reports.

Mr. H. Gillman of Detroit has found in the neighborhood of that city *Spirodela polyrrhiza* in bloom. His specimens are stouter than the Staten Island ones, and all the flowers I could examine, 5 in number, were 2-ovulate, the ovules joining at the erect funiculus, and fully anatropous, while, in that case, the single ovules were hemi-anatropous, the specimens being, as was suggested at the time, depauperate otherwise, in the structure of the anthers etc., both specimens are identical.

You may have heard that the Germans, or rather the Rhinelanders were quite excited last spring about the discovery of the aromatic *Asperula odorata* in America, an herb which is highly prized for the flavor it imparts to wine. I obtained specimens and found them to be *Galium triflorum*, Mchx. Upon my publishing this for the information of my German friends, the true *Asperula odorata* was sent to me by the editor of the N. Y. Staats-Zeitung you city, as having been found in the woods near Brooklyn. There can be no doubt of my having seen fresh specimens of the true plant. How can that be? Has it been planted and naturalized there, or does it come from gardens? Its native localities in Germany are principally beech woods.

St. Louis, August 22. G. ENGELMANN.

MARRUBIUM, L.—**M. vulgare**, L.; not very abundant, but to be found by roadsides and on old places in all our districts; Striker's Bay, N. Y., *Ruger*.

GALEOPSIS, L.—**G. Tetrahit**, L.; "Philipsburg" *Eddy in Torr. Cat.;* Yonkers, *Pooley;* Glen Cove, *Coles;* not common.—**G. Ladanum**, L.; Yonkers, *Pooley;* very rare.

STACHYS, L.—**S. palustris**, L.: Var. **aspera**; not uncommon; N. Y., *Torr. Cat.;* not reported from Long Island.—**S. hyssopifolia**, Michx.; Flushing, Bath, &c., *State Flora;* Jamaica and Middle Island; frequent in Suffolk Co., *Allen;* Closter, plant with odor of mushrooms, *Austin*.

LEONURUS, L.—**L. Cardiaca**, L.; very common; N. Y.

LAMIUM, L.—**L. amplexicaule**, L.; common in old grounds; N. Y.

BORRAGINACEÆ.

ECHIUM, Tourn.—**E. vulgare**, L.; between Jamaica & Flushing, *W. H. L.;* Glen Cove, *Coles;* Westchester Co.; Bergen Point, *W. H. L.;* Sufferns, and common in Orange Co., *Austin*.

LYCOPSIS, L.—**L. arvensis**, L.; Babylon, *Merriam;* near Brooklyn, *Ruger;* Bergen Co., N. J.; *W. H. L.*

SYMPHYTUM, Tourn.—**S. officinale**, L.; not uncommon; in some places seems well established by streams in meadows.

ONOSMODIUM, Mchx.—**O. Virginianum**, DC.; Kingsbridge, *Torr. Cat.;* Harlem, Jamaica, *T. F. A. & W. H. L.*

LITHOSPERMUM, Tourn.—**L. arvense**, L.; Orange and Rockland Counties, *Austin;* not uncommon on Long Island, *Ruger, W. H. L.;* in neglected fields, *Torr. Cat.*—**L. officinale**, L.; plentiful at New Jersey Zinc Mines, *Austin;* near Sing Sing, *State Flora;* Hills back of Hoboken; Gowanus, *Ruger*.

MYOSOTIS, L.—**M. palustris**, Withering: Var. **laxa**; common; N. Y.—**M. verna**, Nutt.; common at Closter, *Austin;* and Hoboken, Bergen Point, Patterson &c.; High Bridge.

CYNOGLOSSUM, Rourn.—**C. officinale**, L.; N. Y.; common.—**C. Virginicum**, L.; Weehawken, Fort Lee, *W. H. L.*—**C. Morrisoni**, DC.; common.

HYDROPHYLLACEÆ.

HYDROPHYLLUM, L.—**H. Virginicum**, L.; Weehawken and New Durham swamp; Yonkers, *Pooley*.

POLEMONIACEÆ.

PHLOX, L.—**P. pilosa**, L.; Passaic, *Thurber;* Chatham, N. J. vid. § 43. —**P. subulata**, L.; Patterson, and Red Bank, N. J.: other cultivated species are often found flourishing by roadsides.

CONVOLVULACEÆ.

QUAMLOCLIT, Tourn.—**Q. coccinea**, Mœnch; "I have seen this species" near Yonkers "growing quite freely away from cultivation," *Pooley.* [A specimen is desired, *Eds.*]

IPOMŒA, L.—**I. purpurea**, Lam.; fields, Bowery Bay, *Ruger.*—**I. pandurata**, Meyer; "On the island of New York, near Kingsbridge." *Cooper in Torr. Cat.;* Staten Island, *State Flora;* near Tottenville, also New Providence, N. J., *W. H. L.;* Closter, *Austin;* probably also in Westchester.

CONVOLVULUS, L.—**C. arvensis**, L.; in nurseries Yorkville and Flushing, *W. H. L.;* Glen Cove, *Coles;* Ravenswood and West Flushing, *Ruger;* roadsides near Closter, rare, *Austin.*

CALYSTEGIA, R. Br.—**C. sepium**, R. Br.; common; N. Y.—**C. spithamæa**, Pursh; Woodhaven, L. I., *Ruger;* Orange Co., *Austin;* 86th St., near 2nd Ave., *W. H. L.*

CUSCUTA, Tourn.—**C. inflexa**, Engelm.; Staten Island, Suffolk Co., L. I., near Peekskill, *W. H. L.*—**C. arvensis**, Beyrich; streets of New York, *W. H. L.;* in an old field now owned by James Gowdy, Esq., near Tappan, July, 1857, *Austin;* Shark River, N. J., *Forman!*—**C. Gronovii**, Willd.; very common; N. Y.—**C. compacta**, Juss.; very common in Bergen and Ocean counties, N. J., *Austin;* abundant near Lake Mohegan, Westchester Co., *W. H. L.*, and probably elsewhere.

SOLANACEÆ.

SOLANUM, Tourn.—**S. Dulcamara**, L.; rather common; N. Y.—**S. nigrum**, L.; common in waste places and about dwellings; and "on shaded rocks," *Austin;* N. Y.—**S. Caroliniense**. L.; in various localities around Brooklyn, *Ruger and others;* also on Bergen Point, *W. H. L.*

PHYSALIS, L.—**P. Philadelphica**, Lam.; *Le Roy;* Flushing, *Allen;* N. Y.? —**P. pubescens**, L.; 65th Street and North River, also Jones's Woods, also Train's Meadow?, *Ruger;* Closter, common, *Austin.* —**P. viscosa**, L.; common; N. Y.

NICANDRA, Adans.—**N. physaloides**, Gærtn.; "Almost naturalized in vicinity of New York," *State Flora;* 79th Street, near 1st Ave., *W. H. L.;* Yonkers, *Pooley;* *Le Roy.*

LYCIUM, L.—**L. vulgare**, Dunal; not uncommon; Yonkers, *Pooley;* Blissville, L. I., *Ruger;* waste grounds, occasional about Closter, *Austin.*

HYOSCYAMUS, Tourn.—**H. niger**, L.; Central Park, 1862, *Austin;* road sides near Westchester, *Torr. Cat.;* Glen Cove, *Coles.*

DATURA, L.—**D. Stramonium**, L.; common; N. Y.—**D. Tatula**, L.; common; N. Y.

NICOTIANA, L.—**N. rustica**, L.; Long Island, *State Flora.*

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

GENTIANACEÆ.

SABBATIA, Adans.—**S. paniculata**, Pursh; "In bog meadows, July. white" *Torr. Cat.* This is probably a mistake, possibly a white variety of some other species.—**S. angularis**, Pursh; rather common; N. Y.; abundant on Long and Stony Hills, N. J.; Closter, *Austin;* New Durham, *Le Roy;* Staten Island, *W. H. L.;* Glendale, L. I., *Ruger;* frequent in southern part of the state, *State Flora.*—**S. stellaris**, Pursh; common in salt meadows; N. Y.; sometimes white, Coney Island, Aug. 1865, *W. H. L.*—**S. gracilis**, Salisb.; "In wet meadows, New York." *Torr. Cat.*, but as nothing is said of it in the State Flora, we presume that it was a mistake, if indeed this species be distinct from the former.—**S. chloroides**, Pursh; Hackensack meadows; "Brackish bog meadows on the Island of New York, and on Long Island." *State Flora;* Harlem marshes, *Austin.*

ERYTHRÆA, Pers.—**E. ramosissima**, Pers., Var. **pulchella**, Griseb.; wet meadows, Flushing, L. I., *State Flora;* Tappan and Closter, 1857 & 1858, *Austin.*

GENTIANA, L.—**G. quinqueflora**, Lam.; "In woods near Elizabethtown, N. J., Eddy." *Torr. Cat.;* very common in Orange Co., does not occur about Closter, *Austin.*—**G. crinita**, Frœl.; "In low meadows. New York. Toteway mountains. New Jersey." *Torr. Cat.;* Closter, common, often abundant on uplands, *Austin;* Yonkers, *Pooley;* Long Island, *Ruger, Coles;* Hackensack marshes; Long Hill, N. J.; Staten Island.—**G. ochroleuca**, Frœl.; reported by *Eddy in Torr. Cat.*, but discredited by Dr. Torrey in *State Flora*, and evidently by Dr. Gray in *Manual.*—**G. Andrewsii**, Griseb.; common; N. Y.

BARTONIA, Muhl.—**B. tenella**, Muhl.; common; but not reported from N. Y.

OBOLARIA, L.—**O. Virginica**, L.; said to have been found on Orange Mt., N. J., but has not been verified.

MENYANTHES, Tourn.—**M. trifoliata**, L.; a small patch in a bog 1 mile S. E. of Closter, *Austin;* New Durham, *Le Roy;* on N. R. R. of N. J. near its junction with E. R. R. I have pointed out, § 46, that this plant is dimorphous, *W. H. L.;* Suffolk Co., *E. S. M.*

LIMNANTHEMUM, Gmelin.—**L. lacunosum**, Griseb.; "In ponds, Long Island and New Jersey, *Eddy.*" *Torr. Cat.;* Wading River, Suffolk Co., *E. S. Miller;* probably grows elsewhere within our limits.

APOCYNACEÆ.

VINCA, L.—**V. minor**, L.; Stryker's Bay, N. Y.; Ridgewood, Flatlands, &c., L. I., *Ruger;* vid. § 31, Vol. I.

62. **Opuntia Rafinesquii**, Engelm.—About the middle of last June I gathered some specimens of *Opuntia Rafinesquii*, on a rocky cliff of the Highlands, half a mile north of Cold Spring. One of the plants bore a flower-bud that had just commenced to open. This was laid upon the table in my room at the hotel, but for three days it persistently refused to expand its petals in that shaded place. Then a

couple of hours' exposure to the direct warm rays of the sun opened the flower in all its golden beauty. Another plant, bearing four flower-buds, was brought to Albany and placed upon a shelf just behind and above the kitchen stove. The distance of the plant from the stove-pipe was about one foot, so that it had the benefit of a pretty high temperature. Under the influence of the heat from the stove, the flowers expanded one after another, the last one unfolding the eleventh day after the plant had been taken from its native habitat. The specimen was composed of three flattened or leaf-like joints of about the usual size, one basal, the other two, terminal. These showed no signs of suffering from the want of nourishment until about the middle of July, one month after they had been gathered. At this time the basal joint began to wither, and soon after a new shoot put forth from one of the terminal joints. The drying process advanced slowly from the base upwards until the latter part of August, when it was completed so far as the original joints were concerned. In the mean time the new joint had attained a length of one foot. Its growth still continues, it being now (Sept. 15th) fourteen inches long. It is, however, excessively attenuated, being only half an inch wide at its broadest part. It is abundantly supplied with weak, soft, recurved spines about three-eighths of an inch long, and is paler in color than the original plant. It will be interesting to know how long it will continue to grow, but probably its duration will now be short, since it begins to show signs of withering toward the base.

To us who are distant from the ordinary localities of this plant and seldom have an opportunity of observing it, this behavior is interesting. It indicates the need of a high temperature to promote the growth of the plant and to cause the flowers to expand, and also shows a tenacity of life not surpassed even in the famous "Live-for-ever," *Sedum Telephium*, L. It suggests the inquiry whether, in the growth of the new shoot that has been described, the nourishment was drawn mainly from the original joints or from the air. The plant was in contact with no soil and was not once moistened with water. The growth has continued after the complete drying up of the original joints, which would indicate the air and the moisture in it as the sources of supply; but the slight withering of the base of the new shoot suggests the idea of a kind of "robbing-Peter-to-pay-Paul" process, as if the juices of the original joints had in the first place been transferred to the new shoot for its support, and now, this supply having failed, as if the juices of the base of the new shoot were passed along for the support of the apex.

It is also evident that, by placing plants with well developed flower-buds in a cool shaded place, their blossoming may be delayed for a considerable period, and the flowers may then be caused to expand, by the application of heat, at such a time as they may be wanted either for ornament or for exhibition.

Albany, Sept. 18th. CHAS. H. PECK.

M. Prillieux, quoted in *Bowdoin Sci. Rev.* p. 237, 1870, shows that when wilted flowers revive in a moist atmosphere, it is at the ex-

pense of the lower portions of the stem, with an actual loss of weight in the whole.
Eds.

63. Bees on Gerardia pedicularia, L.—Happening to sit down to-day by what might be called a copse of Gerardia pedicularia—it was so abundant and shrubby—I was interested in observing the humble-bees who were winging about the flowers. To my surprise, I noticed that the noisy fellows did not enter the tube of the corolla, but appeared to alight upon its base. Upon closer examination I found that on every flower (there was no exception) was a perforation upon the upper side of the corolla near its junction with the calyx. Through this opening, which I presume of course is formed by the bees themselves, they appeared to derive the nectar. The air was heavy with the perfume of the flowers, and the humble bees were very numerous. In the books at this moment at my service, I find no notice of this "unkindest cut of all." I suppose, however, that it cannot have escaped the attention of the many botanists now investigating the insect fertilization of plants. After a long inspection I found no bee approaching the flower from the front—although the door stood wide open, and to human seeming the entrance was as easy. I have known of this trick of the bees—and seen it mentioned in regard to other plants—but I do not remember that the Gerardia was among them. If this is the invariable habit of the bees, can they be instrumental at all in the distribution of the pollen, or is the plant also visited in a legitimate manner by some less sneaking insect?

Providence, R. I., Sept. 3d. W. W. Bailey.

This is the first example in our knowledge of native flowers slit by bees, and would seem to indicate that in this instance they had not been "selected" in adaptation to each other.
Eds.

64. Note from Prof. A. M. Edwards.—A few days since, when after Diatoms, I found our garden Portulaca, the brilliant red one, out on the made ground of the marshes back of Hoboken. It was in flower and evidently carried out by the carts which were at that time transporting rubbish to make streets across the marsh. I noticed nearly a dozen plants widely scattered. May we not expect after a time to have this beautiful flower wild in this country?

My friend, Mr. M. C. Cooke of London, whose excellent "Handbook of British Fungi" is just published, is at work on American Fungi. He lately records the following on flowering plants I sent him.—**Æcidium Violæ**, DC.; **Æ. Asterum**, Schw.; **Æ. Grossulariæ**, DC.; **Æ. Dracontii** Schw.; **Trichobasis Sagittariæ**, West. The last is now recorded for the first time out of Europe.

With respect to Diatomaceæ, a year or two back I mentioned at the Lyceum of Natural History that I had found at least two, so-considered, species of *Gomphonema* on the same stipes; proving them to be but "forms" of one species. I now find in a stream on Union Hill, N. J., *Gomphonema constrictum*, *capitatum*, *acuminatum* and *cristatum*, with intermediate forms all on the same stipes. This fact, with others relating to the same subject, will be fully treated of with illustrations, in the annals of the Lyceum, and show how puzzling it is to determine what are specific characters in these minute forms.

In the same stream is *Hydrodictyon utriculatum*, Roth.

314, W. 34th St., Sept. 23d. A. M. E.

65. **Cynoglossum officinale**, L.—I found, this last summer, one specimen of *Cynoglossum officinale*, L., growing in a vacant lot in Freehold, N. J. Another specimen was given me, obtained on the road side not far from Keyport, the donor regarding it as a curious plant which he had never seen before. I have seen *C. officinale*, both the red, and the white flowered varieties, very common and troublesome in Schoharie and Green counties, New York. I remember that the late Hon. Zadoc Pratt, of Prattsville, N. Y., used to employ men, at his own expense, each summer to cut the pest down for many miles on the road side. S. L.

66. **Nymphæa odorata**, var.—On visiting Lewes, Del., lately, I was interested to find in the cabin of the steamship, a fine group of the pink-tinted water-lilies, gathered in a pond near the pine woods between the town and Cape Henlopen, as I was told. They were quite small flowers, but of very choice and delicate perfume, white within, but the outer petals and the sepals richly tinged with rose color. It is interesting to find a well-defined locality of this peculiar and striking variety of one of our loveliest flowers.

Sept. 25th. D. S. M.

67. **Suffolk Co. Plants.**—This year I have collected about here specimens of the following plants: *Myriophyllum tenellum*, Bigelow; *M. ambiguum*, Nutt. Var. *limosum; Ludwigia sphærocarpa*, Ell.; *Oldenlandia glomerata*, Mchx.; *Eupatorium album*, L.; *E. rotundifolium*, L.; *Coreopsis rosea*, Nutt.; *Utricularia inflata*, Walt.; *U. purpurea*, Walt.; *U. resupinata*, Greene; *Sagittaria calycina*, Engelm., Var. *spongiosa; Smilacina stellata*, Desf.; *Eleocharis Robbinsii*, Oakes; *E. rostellata*, Torr.; *E. melanocarpa*, Torr.; *Rhyncospora macrostachya*, Torr.—at Middle Island; *Eupatorium pubescens*, Muhl.—at Mt. Sinai, *Mentha aquatica*, L., Var. *crispa*, Benth.—at Setauket, *Onoclea sensibilis*, Var. *obtusilobata*, Torr.

Wading River, L. I., Oct. 3d. E. S. MILLER.

68. **New Stations.**—**Thymus serpyllum**, L., between Irvington and Tarrytown, on the left of the road about 400 yards this side of Mr. Merritt's place, *J. W Wood.*—**Melilotus officinalis**, Willd., a single specimen, by the rail road between Washington Heights and Manhattanville; *J. W. W.*—**Draba Caroliniana**, Walt., on Ridgewood Reservoir, near Centreville, L. I., in great abundance: it seems to flower later than *D. verna*, L., *G. M. Wilbur.*—**Anagallis arvensis**, L., on ground recently exposed in Union Square, with flowers of a fine *blue*, *G. M. W.*—On Little Snake Hill, **Muhlenbergia capillaris**, Kunth, and **Solidago rigida**, L., grow in great abundance, *T. F. A. & W. H. L.*—**Solanum Caroliniense**, L., by the road leading up the hill from Weehawken Ferry.

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69. **Herbarium Suggestions.**—No. 4. *Drying Specimens.*—At the time of collecting specimens, and while laying them between the thin sheets of the portfolio, no special care is necessary to straighten out the leaves, and other parts of the plant. This would often be interfered with by the wind in the open field, and, moreover, the vegetable tissue is elastic and the parts of the plant will not "stay put," when arranged at this time. At the subsequent early changes of the driers, however, and especially on the first change, this matter should receive careful attention ; all folds and doublings-up of leaves, petals, etc., should be removed, and the whole specimen should be arranged as nearly as possible to conform to its natural appearance before collection.

At the same time that this is done, let pieces of bibulous paper be interposed between any leaves or other portions of the plant which overlap each other, in order to prevent their moulding and hasten their drying, and change these fragments of paper subsequently when changing the driers.

The more bibulous the paper composing the driers, the better. A good quality for the purpose may sometimes be found in large paper stores, but is somewhat expensive. Ordinary newspapers, of suitable size, will answer. For the convenience of handling, the drying paper is made up into packets of about twelve thicknesses, and this is sometimes done by stiching them together, but a far better way is to unite them by two of "McGill's paper fasteners" placed about an inch from the edge of one of the sides.

When fastened in this way, the packets may be dried by placing them astride of a clothes-line in the open air, or on a string stretched across the room ; and this is much better than having them lying about on the floor to be trodden on by the feet and with only one surface exposed to the air.

We should always have a large supply of packets so as to use them liberally, especially when the specimens are thick and succulent. In the latter case, also, sheets of thick pasteboard are desirable to interpose here and there between the packets to prevent a thick stem from indenting its neighbors.

For pressing plants, two boards with weights on top are best: all screw presses are objectionable, since, as the plants shrink in drying, they cease to receive the necessary pressure. This point has already been mentioned in a previous number of the Bulletin, p. 16.

In drying plants, they are retained continuously in the thin sheets of paper in which they were at first placed, but their position in the sheet is advantageously changed from time to time as soon as the plants are sufficiently dry to bear motion without crumpling.

Plants that are sticky and liable to adhere to the paper enveloping them may be sprinkled over with some inert powder, as that of Lycopodium or powdered soapstone. *(To be continued.)* F. J. B.

70. **Sesuvium pentandrum,** Elliott.—Is Sesuvium pentandrum a distinct species or only a variety of *S. Portulacastrum*, L.? To judge

from our Manuals, one would infer that its characteristics were so fickle as to make it unworthy of being regarded even as a variety of the *Portulacastrum,* for neither Gray nor Wood alludes to its existence.

Chapman recognizes both species, and evidently considers them entirely distinct ; and, as they are peculiarly southern plants, his opinion would seem to be worthy of much consideration.

As the plants are seldom seen at the north, I venture to give their peculiarities :

S. Portulacastrum, L.—Leaves lanceolate and oblong, acute ; flowers *pedicelled* nearly ½ an inch, stamens numerous, 15 to 60 ; *perennial ;* Florida and northward.

S. pentandrum, Ell.—Leaves spatulate, obovate, obtuse; flowers *sessile; stamens five* in the sutures of the Calyx ; *annual?* Fl.—N. C.

Chapman places an interrogation mark after *annual,* and it is important to determine what the fact may be.

It has been common for many years past to give the range of *Sesuvium Portulacastrum* "from N. J. southward," and yet I am inclined to believe that the typical form of this species with numerous and variable stamens does not occur at all upon the shore of N. J. My evidence is of course negative, but such as it is I give it. The first notice that I find of the genus in N. J. is in Nuttall's Genera of Northern Plants (1818), where it is described as *S. sessile,* DC., "leaves spathulate, flowers sessile"—which, to judge from the above description, was *S. pentandrum.* Since Nuttall, *S. Portulacastrum* has continued to be quoted from "N. J. southward." The genus is not mentioned in Torrey & Gray's Plants of the U. S.

In the summer of 1870, I discovered *S. pentandrum* at East Hampton, L. I. (Bulletin Vol. I., § 91.) Prior to that time I believe it was not known to grow north of N. J. I recently received from Mr. J. H. Redfield, of Philadelphia, a letter in answer to inquiries, from which I make the following extract :

"In the summer of 1869 my friend C. F. Parker of Camden collected at Cape May, N. J., a Sesuvium which he supposed to be of course the *Portulacastrum,* L., until an examination showed him it was the *pentandrum,* Ell. Last summer I found at Atlantic City, N. J., a Sesuvium which I also supposed to be the *Portulacastrum,* until a close examination showed it to be the other form. I am also informed that Dr. Leidy of Philadelphia has collected *S. pentandrum* at Cape Henlopen, so that, including your locality (East Hampton, L. I.), we have now four points for it, reaching from Cape Henlopen to the east end of Long Island. But the curious point in the matter is that in this region at least of our sea coast no one, so far as I can learn, has found the typical *Portulacastrum.*"

Here then is a plant growing for 300 miles along our coast, invariably of one form—the pentandrum. Surely this indicates a persistency which should entitle the form to rank at least as a *variety.*

Mr. Redfield was good enough to send me specimens both from Cape May and Atlantic City. They fulfil the concise and exact description of Chapman, and correspond entirely with my own specimens from East Hampton.

J. S. Merriam.

71. **Notes by C. F. Austin.**—On Nov. 4th, at about noon, the day being a little blustering and cool, but clear—the thermometer certainly above the freezing point—I found on the stems of *Cunila Mariana*, L., close to the ground, flat and solid crystals of ice or frost, about ¼ of an inch in thickness and about 2 inches square, somewhat bent or curled, translucent, and striated at right angles to the stem of the plant. The plants were growing on the west side of a slate ridge. The ground was not frozen, nor was there any ice in a pond hole near by. I do not recollect seeing any thing of the kind before, yet have heard of the same thing occurring with *Helianthemum*. The frost crystals, one on each plant, were not attached to the roots but to the stem, and extended about 2 inches above the ground.

Is it generally known among botanists that, when here and there a Hemlock tree is cut from a grove where they stand close together, the stumps retain their vitality for many years? I know of a number which have continued to live at least 10—15 years. They never sprout! but continue to grow in diameter! This is caused, of course, by the natural "grafting" of the roots.

I have found isolated Sassafras roots in damp clayey soil when the stump was entirely gone; yet the roots possessed all the freshness of those from living trees!

I send two flowers of *Azalea nudiflora*, collected about two weeks ago in the woods near Middletown, Orange Co.

The Rev. S. W. Knipe, of Delaware Water-gap, Pa., has described to me a *Pogonia* found there by himself which must be *P. affinis*. He says he found only a single specimen, which he gave away, but thinks he can recover.

Negundo aceroides, Mœnch, grows along the Hackensack river, at the flats, about half a mile west of Closter.—**Geum rivale**, L., occurs on the meadows between Tappan and Piermont, a few rods east of the R. R. **G. strictum**, Ait., occurs at Closter. Closter, Nov. 14th.

72. **New Mistletoe.**—About the 20th of September last we received from Miss L. A. Millington, Glens Falls, "a few specimens of a parasitic plant" that she had found growing on *Abies nigra*, Poir. She wrote: "I believe it to be a mistletoe. I found the first specimen on a small tree in the edge of a cold peat bog in Warrensburg, Warren Co., N. Y. In a few days I found more in a similar situation in Elizabethtown, Essex Co., N. Y. Later I found it half way up the north side of a high mountain. All these places would seem to indicate a higher latitude than even Northern New York as the possible habitat of the plant. In every case the limbs of the trees infested were very much distorted. Every twig bristled with the little parasite, and some trees seem to have died from the effects of its absorption of their sap." We suspected the object to be a gall, being partly misled by the separation of the joints in the letter enclosing them, but Miss Millington afterwards wrote us, that "nine of the plants were over an inch in height and were divided into sections of perhaps an eighth of an inch each. The divisions were cylindrical, and each grew from the cleft end of the last segment. Generally each plant had one, two, or more branches. The cluster of fruit appeared in the same way from the cleft ends." We referred the

plant to Dr. Torrey, and subsequently to Dr. Gray. While awaiting their decision, we learn from Dr. Engelmann that it is a true Loranth.

This is what Dr. Engelmann says:

> "Mr. Peck of Albany has made a most curious discovery, in finding on *Abies nigra* in your state a minute *Arceuthobium*, which is probably an undescribed species to be called *A. minutum*, but it has close analogies with the West Coast and Mexican *A. campylopodium*, Eng. I am just reviewing this curious genus, with plenty of material at hand—a deal of labor."

APOCYNUM, Tourn.—**A. androsæmifolium**, L.; Closter, common, *Austin;* Glen Cove, *Coles;* Yonkers, *Pooley;* Long Hill, N. J., *W. H. L.;* quite common; "Along hedges, Greenwich," *Torr. Cat.;* both sides of Harlem River, *W. H. L.;* Staten Island.—**A. cannabinum**, L.; common: Var. **pubescens**, DC.; N. Y. bank of Harlem River, near 6th Ave., *W. H. L.*

ASCLEPIADACEÆ.

ASCLEPIAS, L.—**A. Cornuti**, Decaisne; common; N. Y.; the young shoots make an excellent potherb, *Austin.*—**A. phytolaccoides**, Pursh; common and not rare; not reported from N. Y.—**A. purpurascens**, L.; common.—**A. variegata**, L.; along both banks of Harlem River and Spuyten Duyvil Creek and the adjacent country, *W. H. L.;* Bloomingdale, *Torr. Cat.;* Long Island, *State Flora;* Glen Cove, *Coles;* Closter, scarce, *Austin.*—**A. quadrifolia**, Jacq.; common but not frequent, N. Y.—**A. perennis**, Walt., *(A. parviflora*, Pursh,*)* is put down in R. & P's catalogue of Central Park, but we suspect erroneously.—**A. incarnata**, L.; very common; particularly the var. **pulchra**; N. Y.—**A. obtusifolia**, Mchx.; common, especially in pine woods; but not reported from N. Y.—**A. rubra**, L.; Glen Cove, *Coles;* terminus of Centreville Ave., Centreville, L. I., *Ruger;* said to have been found at South Amboy.—**A. tuberosa**, L.; common; N. Y.—**A. verticillata**, L.; "On the rocks at Passaic Falls," *Torr Cat.;* Palisades, common, *Austin;* Red Bank, etc., N. J.; Staten Island near New Dorp; West Flushing near Flushing Bridge, *Ruger;* Yonkers, *Pooley.*

ACERATES, Ell.—**A. viridiflora**, Ell.; "Dry hills and sandy fields: southern part of the State," *State Flora;* East New York, and Centreville along the aqueduct, *Ruger;* old fields, Closter, 1858, *Austin;* New Dorp, Staten Island, *W. H. L.*

VINCETOXICUM, Mœnch.—**V. nigrum**, Mœnch; Flatbush, *Ruger;* escaped and running wild near the road to Vandeveer's mill, Flatlands, *Merriam.*

OLEACEÆ.

LIGUSTRUM, Tourn.—**L. vulgare**, L.; quite common and naturalized; N. Y.; near Stanhope, Morris Co., N. J., thoroughly wild, *Austin;* Prospect Park, *Merriam;* &c.

FRAXINUS, Tourn.—**F. Americana**, L.; common; N. Y.—**F. pubescens**, Lam.; low grounds along streams, very common about Closter; and extremely variable in size and shape of fruit and leaves, branches and leaves often quite glabrous, *Austin;* Central Park, scarce, *R. & P.;* frequent in adjoining parts of N. J., *State Flora;* banks of the Sawmill R., Yonkers, *W. H. L.*—**F. viridis**, Mchx. f.; Central Park, *R. & P.;* we have no other authority for this species in our vicinity.—**F. sambucifolia**, Lam.; common, *Austin;* Yonkers, *Pooley;* Glen Cove, *Coles;* Harlem River, N.Y., *W. H. L.*

ARISTOLOCHIACEÆ.

ASARUM, Tourn.—**A. Canadense**, L.; not uncommon, not reported from N. Y.

ARISTOLOCHIA, Tourn.—**A. Serpentaria**, L.; Closter, Weehawken, &c., quite frequent; Long Hill, N. J., Tottenville, Staten Island, Inwood, N. Y., *W. H. L.;* near the toll gate, beyond Jamaica, *Merriam;* Glen Cove, *Coles;* vid. § 6, Vol. I.

PHYTOLACCACEÆ.

PHYTOLACCA, Tourn.—**P. decandra**, L.; common; N. Y.; very common in recent clearings, *Austin;* not confined to low grounds, *Austin, W. H. L.*

CHENOPODIACEÆ.

CHENOPODIUM, L.—**C. album**, L.; very common; N. Y.—**C. glaucum**, L.; Hoboken, and N. Y., *Austin;* Brooklyn, *Merriam;* various stations about Brooklyn, and 63d and 64th Streets, near Lexington Ave., *Ruger*, vid. Vol. I. § 82, Vol. II. § 37.—**C. urbicum**, L.; Closter, &c., *Austin;* Coney Island; Staten Island; Newark.—**C. murale**, L.; Vanderbilt's Landing, Staten Island, *W. H. L.*—**C. hybridum**, L.; Closter, common, *Austin;* Fordham, near High Bridge, *W. H. L.;* generally common, *State Flora.*—**C. Botrys**, L.; abundant in waste ground and unimproved streets, N. Y.; and Brooklyn, *Merriam;* and between Brooklyn and Coney Island.—**C. ambrosioides**, L.; very common on N. Y. Island, and in the vicinity: Var. **anthelminticum**; roadsides near N. Y., *State Flora, Ruger.*—**C. multifidum**, L.; formerly found on N. Y. Island but not recently.

BLITUM, Tourn.—**B. maritimum**, Nutt.; Long Island, Hoboken, *State Flora, Torr. Cat.*—**B. capitatum**, L.; "In fields, New York," *Torr. Cat.;* in an orchard, Orange, N. J., many years since, *W. H. L.*—**B. Bonus-Henricus**, Reichenbach; Glen Cove, *Coles;* along the village street, East Hampton, L. I., *Allen, Merriam.*

73. **Herbarium Suggestions.**—No. 4. *Drying Specimens, continued.*—The frequency of changing the driers is a matter of much importance. There are two facts which the botanist should constantly

bear in mind: 1st, the more rapidly plants are dried, the better they will retain their colors; 2nd, the first two days that plants are in the press are of more importance than all the subsequent time.

Two or even three changes of the driers during the first 24 hours will accomplish more than a dozen changes after the lapse of several days. The most perfect preservation of the beautiful colors of some orchids which I have ever seen, was effected by heating the driers and changing them every two hours during the first day.

For less delicate specimens, two changes the first day, one change a day for three or four days after, and subsequent changes at gradually increasing intervals, will suffice. It is often difficult to tell whether a plant is thoroughly dried or not. This may sometimes be ascertained by pressing it for a moment against the check. If the cheek feels cold on its removal, the plant is still moist.

Other methods of drying plants are sometimes employed, but are less convenient or less adapted to a large number of specimens.

One is to place the plants and driers between sheets of wire gauze protected on the edge with a rim of stout iron wire, and hang the whole in the sun and wind, without any subsequent change. Only a small package of plants can be dried in this way.

Another is to abstract the chief part of the moisture of the plants at the outset, by placing them in some convenient vessel, and sprinkling or sifting dry and warm sand over them; at the end of a day or so, they are to be removed from the sand and put in the press.

I had nearly forgotten one point of the first importance: do not neglect, at the earliest opportunity, to insert in each sheet a label bearing the name of the plant, if already made out, but, at all events, the place and date of collection, together with notes of the locality in which it was found. This is often left, to the subsequent sorrow of the botanist, until these particulars have escaped the memory, and half the value of the specimen has consequently been lost.

F. J. B.

71. **Spirodela polyrrhiza.**—Prof. Hegelmayer of Tübingen has just given us in the *Botanische Zeitung* of Sept. 22 & 29, 1871, a most interesting addition to the very thorough monograph of Lemnaceæ, published by him three years ago, by his account of the organs of fructification of Spirodela polyrrhiza from the specimens received from Mr. Leggett, and has illustrated it thoroughly by numerous figures.

He premises it by stating that, according to his present lights, he must consider the organs of the flowering Lemnæ as constituting single hermaphrodite flowers, consisting of a pistil and two lower stamens, the third upper one being regularly abortive, and subtended by a bract (what was called the spathe.)

He then minutely reviews the flowering organs of our Spirodela, which are in the bud surrounded and enveloped by the membraneous bract, bearing crystal and pigment cells, and which opens by a small apical slit. The second or posterior stamen often remains undeveloped. The anther cells are arranged not above one another as in other Lemnæ, but behind one another or obliquely lateral, as had been stated before. The filaments show spiral vessels, especially visible in the connective.

The ovules he finds single or in twos, (in the Detroit plant they were always in twos.)

He then gives a minute account of the structure of the ovules and of the horizontal seed. The seeds are single, in one specimen only he found two immature but regularly developed seeds. In all the specimens examined they were covered with epidermis, and therefore smooth; but he supposes that in a later stage the epidermis disappears and then the seed might have a ribbed appearance, much like the other Lemnæ in which the epidermis is more easily destroyed and thus the peculiar surface markings brought to light. The endosperm is thicker than in other Lemnæ—there is also a difference in the slit of the embryo.

In a systematic point of view the structure of the anthers would fortify the genus Spirodela, which altogether proves to be the most highly developed of all Lemnaceæ, if the second species of the genus, Spirodela oligorrhiza, should exhibit the same character; but the flowers of this are to him unknown.

The number of ovules proves of little importance as a generic character. Not only that here one as well as two occur—he has now also become acquainted with a form from different parts of Australia, which, in most respects very similar to Lemna minor, shows regularly two ovules, and which on that account he had formerly thought to be allied to L. gibba, but which he now is inclined to consider distinct from both L. minor and L. gibba, and names *L. disperma.* G. E.

75. **Arceuthobium.**—We have received further particulars about this interesting discovery. Mrs. Millington writes, Nov. 23: "It seems curious that the plant I found should be so nearly the one I set out to find last April when I first saw the Nevada parasite. It occurred to me then that something of that kind might cause the unhealthy look and the decay of the Black Spruce, so well-known among the Adirondacks. Almost the first Abies that I had an opportunity to examine was literally covered with that curious growth, then quite small and without fruit. Some botanist, who has an opportunity to examine the *Abies balsamea*, might possibly find it infested with the same parasite. Many trees present the same appearance as the A. nigra when the parasite is present." Again, in a letter dated Dec. 12th, she writes: "I received a very interesting letter from Dr. Engelmann, and, to secure some winter specimens that we might study its habits more at large, I went myself to Warrensburg. I got specimens from twenty different trees, large and small. About 75 per cent of all the spruces were infested. Groups of large trees forty feet high were dead, and bore the peculiar marks of the parasite. Nothing but the depth of the snow (twelve inches) prevented my looking farther among the A. balsameæ, where I expect to find it yet. The location is on the east side of the plank road, two miles and a half from Warrensburg village, and half a

mile south of the toll-house. It is known as Dr. McNutt's Marsh, and is about 60 rods from the road."

"All the plants I send you are young ones: the question is, did they grow from this year's seed? You will, on examination, find tiny red points in the bark of this year's wood, and observe that the largest plants are in the older wood, and that none of them are the plants of last summer's growth."

76. Note from Dr. Gray.—Mr. Peck of Albany sent me, early last autumn, a good specimen of a parasite on *Abies nigra*, asking what it was. I replied that it was the female of an *Arceuthobium*, most likely *A. campylopodum* of Engelmann—to whom I advised he should send specimens; that the discovery was an interesting and unexpected one. As Dr. Engelmann seems to have been supplied with much smaller and less developed specimens than I was, I venture to suspect that he will yet conclude that it is his *A. campylopodum.*

The curious thing about the discovery is: 1st, that it should not have been detected before; 2nd, that it should, after all this overlooking, be found during the same season by two persons, in three different counties, and so abundant as to disfigure or even to destroy the trees it infests.

I did not answer your communication at once, because I knew that the plant had already been brought to the knowledge of the Torrey Club, and because I sent it at once, with the specimen, to Dr. Engelmann, who has only now returned it.

December 4th, 1871. A. G.

77. Sesuvium.—Mr. Merriam informs us that Dr. Gray has written him as follows: "No doubt your Sesuvium is S. pentandrum, and that *that* is a good species. I have no specimens of S. Portulacastrum from the Northern States. Equally I have *now* no doubt but that *S. sessile*, Nutt. (not DC.), is this *S. pentandrum*, as you say in the Bulletin."

78. New Stations.—**Erodium cicutarium**, L'Her.; Wallabout Swamp, on Nostrand Ave., Brooklyn, nearly opposite the hat factory.—**Lysimachia vulgaris**, L.; West Flushing.—**Pedicularis lanceolata**, L.; New Lots and Centreville, L. I.—**Origanum vulgare**, L.; Gowanus, Centreville, &c., L.I.—**Nicandra physaloides**, Gærtn.; Woodhaven, L.I. M. RUGER.

79. Notes and Queries.—I am desirous of obtaining peculiar forms of *Lechea*, especially from the south, and more particularly from Florida and the West Indies. I shall feel under much obligation to any one who will assist me by loan, exchange, or otherwise.

WM. H. LEGGETT, 224, E. Tenth St., N. Y.

H. H. Babcock, 11, 18th St., Chicago, Ill., has for exchange plants from the vicinity of Chicago.

Those who have experience in the examination of plants would do a good service by imparting the results. What, for example, is the best mode of getting at an embryo enclosed in horny albumen?

Terms—*One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. III.] New-York, January, 1872. [**No. 1.**

1. **Blitum capitatum**, L.,—I have received from Delhi, Delaware Co., and hear that in that region it is not uncommon. I believe that it grows also in the neighborhood of Chester and Goshen, Orange Co., and I am very sure I have heard of its being found in Rockland Co. I have also heard of and seen it all the way from Rochester to Rome.

Blitum Bonus-Henricus, Reich.,—I have found at Blue Point, L. I., near Throgs Neck, and at other places in the S. E. part of Westchester Co. In Central and West N. Y. it is not at all uncommon. At Auburn, Aurelius, Clinton, Oriskany, and many other places I have seen it abundant. It loves the neighborhood of old wood piles, and corners of fences, and situations under the beams and around the posts of open sheds.

Salsola Kali, L.,—I have seen growing on the H. R. R. R. track, where it was daily passed over by the locomotives, all the way from Tarrytown to Sing Sing. It is quite common as far up the river as Tarrytown. I have often seen it growing in the interstices of timber wharves, high up above the water, where the wheels of carriages disturbed it continually.

Polygonum amphibium, L.—The two varieties grow larger in and on the shores of the outlets of the lakes of Western N. Y. than I have ever seen them elsewhere. On the shore of the Owasco Outlet the plant very frequently grows in a patch lying partly in and partly out of the water, all apparently the same in immediate origin. That growing on the shore and for a foot or two from the edge standing in the water is the Var. *terrestre* ; then, beyond it, trails in the water the Var. *aquaticum*. I cannot believe that there is any thing permanent in the varieties, but am of the opinion that the same plant will change its form according to circumstances. There are also intermediate forms which it is hard to class under either variety.

Asplenium pinnatifidum, Nutt.—I learn that the Philadelphian locality of this plant is entirely destroyed, a new road or drive having just been blasted through by the Fairmount Park Commission. The fern grew in crevices on the steep sides of the cliff along the Schuylkill in the rear of Laurel Hill Cemetery. The taking off of the face of the cliff has entirely destroyed the locality and robbed Fairmount Park of its rarest plant. It is to be hoped that a few spores have made their way to some new crevice, and that the region may be replenished. Jan. 19th. I. H. H.

2. Asplenium montanum, Willd.—Mr. Bower showed us recently a specimen of this fern, gathered by Mr. H. Denslow from the precipitous rocks that form the banks of Lake Mohunk, Paltz Point, Ulster Co., N. Y. Mr. Bower expects that *Aspidium fragrans*, Swartz, and *Asplenium montanum* may yet be found growing together in some common locality.

3. New Stations.—**Coronilla varia**, DC., grows luxuriantly a short distance north of Guttenburgh Brewery and not far from the river. It seems to be thoroughly established and naturalized, spreading in the open spaces of the wood. I first found it in 1869. G. M. WILBER.—**Limnanthemum lacunosum**, Griseb., Babylon, L. I. J. S. M.

4. Lace Lichen.—As some of our readers wished to have the correct name of this curious and beautiful plant, we applied to Prof. Tuckerman, from whom we received the following statement: "This lichen is one of the most remarkable of the characteristic species of the West Coast, where it is abundant. Its proper name is *Ramalina reticulata*, (Noehd.,) Krimpolh, but Menzies, who discovered it, called it (in herb.) *R. retiformis*, under which name I briefly referred to it in *Syn. Lich. N. Eng.*, 1848. Dr. Taylor had, however, called it *R. Menziesii* in *Hook. Jour. of Bot.*, 1847, and I published it, therefore, under this name in my *Lich. Amer. Sept.*, *No.* 57. But the name *Lichen reticulatus* is much older than either of these."

5. New Publications.—1. *Report of the Botanist of the New York State Museum of Natural History, Jan.* 1872.—Mr. Peck must have been very industrious, as he reports collecting "two hundred and ninety-nine species new to the State, and eighty-seven new to science, two of them representing two new genera"—a statement which implies a vast amount of labor, aside from the mounting specimens and the general care of the herbarium. He has, besides, received from others seventy-six additions to the flora of the State, and three of them new species. The plants new to science are of course the lower cryptogams, all of them, we believe, fungi, to which Mr. Peck and other botanists in the State seem to be more especially devoting themselves. Among the new species we notice as of interest to the Club, *Puccinia Gerardii*, Peck, and *Æcidium Allenii*, Clinton. Mr. Peck gives directions for poisoning and pressing fungi, derived from his experience, and also what appears to be a very useful synopsis of the difficult genera Clavaria and Æcidium. He finds in all sixty edible fungi in the State.

Credit is given to contributors for the plants sent, but justice would seem to require that the collector should be named as well, when his name accompanies the label. The keen eye of Dr. Allen detected *Wolffia* while he was riding on a stage coach among the Catskills; Mr. Denslow bequeathed specimens of *Galactia mollis* and *Commelyna Virginica* to the State Herbarium; and Messrs. Bower and Ruger discovered *Frangula* on Long Island, as has been reported in the Bulletin.

2. *Clarence King's Report of the Botany of the 40th Parallel* has been noticed by Dr. Gray in the *American Journal* for Jan., and we are promised a fuller review of this important contribution to

the North American Flora. It is published as No. 18 of the "Professional Papers of the Engineer Department, U. S. Army," under the direction of Maj.-Gen. A. A. Humphreys, Chief of Engineers. The botanist of the expedition was Sereno Watson, who, with the assistance in special orders of Prof. Eaton and others, is the author of this valuable report. There are many points of interest even to local botanists. The only one we have space to refer to is the doubt indicated whether *Lepidium intermedium*, Gray, is distinct from *L. ruderale*, L. In Vol. I., § 51, of the Bulletin we pointed out the resemblance of the embryos of the two forms, and the distinction that the cleft in the radical of *L. intermedium* was longer than in *L. ruderale*, so far as our specimens afforded an opportunity of judging.

3. The relations of botany to the earthly ring and to the zodiac may be read in *Hearth and Home* for Dec. 23d ult., and in the observations of the agricultural astrologist quoted in the Jan. No. of the *American Naturalist.*

6. **Financial.**—Subscriptions for 1872 are now due.

7. **Note on Catalogue.**—There is some uncertainty respecting the specific distinctions in *Amarantaceæ* and *Polygonaceæ.*

8. **Marsilia quadrifolia**, L.—As an acute Swiss naturalist has already discovered this plant in Fresh Pond, Cambridge, it is well to put it on record that the plant has been introduced there by Mr. Guerineau, our Gardener, and that it is becoming well established. The stock was originally from the American station, Lake Bantam, Litchfield, Connecticut, sent by Dr. Allen. Asa Gray.

ATRIPLEX, Tourn.—**A. patula**, L. ; common ; N. Y. ; rare about Closter, very common in Orange Co., *Austin :* the more common Var. **hastata** ; everywhere about N. Y. : the nearest approach to Var. **littoralis**, I have found at Communipaw, *W. H. L.*—**A. arenaria**, Nutt. ; rather common on the shores adjacent to N. Y. ; Glen Cove, *Coles.*—The **A. rosea**, L., mentioned in the addenda to the Manual, is to be looked for in our streets.

SALICORNIA, Tourn.—**S. herbacea**, L. ; salt marshes, common, N. Y.—**S. Virginica**, L. ; Coney Island ; salt marshes, L. I., *State Flora.*—**S. fruticosa**, L. : Var. **ambigua** ; "New York, *Muhl.:* Long Branch, N. J., *Cooper,*" *Torr. Cat. :* Glen Cove and Rockaway beach, *State Flora ;* Coney Island, *Allen.*

SUÆDA, Forksal.—**S. maritima**, Dumortier ; common in salt marshes ; N. Y.

SALSOLA, L.—**S. kali**, L. ; common ; N. Y. ; Yonkers, *Pooley ;* Sing Sing, Tarrytown, *Hall.*

AMARANTACEÆ.

AMARANTUS, Tourn.—**A. paniculatus**, L. ; along the Kingsbridge road, near the upper end, or, at least, a form of Amarantus belonging to this section, with flowers strongly tinged with red, and numerous and rather slender spikes.—**A. retroflexus**, L. ; very common, with variations that need examination, one of which usually passes for Var. **hybridus**; N. Y.—**A. albus**, L.; common; N. Y.—**A. pumilus**, Raf.; beach near Babylon, *State Flora.*—**A. viridis**, L.; streets of New York and Brooklyn (64th st. near 4th Ave., *O. W. M.*), sepals regularly five.—**A. Blitum**, L.; streets of N. Y., *O. W. M.;* Staten Island, Quarantine Landing; Weehawken, *W. H. L.;* Yonkers, *Pooley.*

ACNIDA, L.—**A. cannabina**, L.; common in salt marshes; certainly as far up the Hudson as Peekskill, *W. H. L.;* N. Y.

POLYGONACEÆ.

POLYGONUM, L.—**P. orientale**, L.; occasional in waste grounds on N. Y. Island, and in the surrounding districts.—**P. Careyi**, Olney; margin of a swamp between Tenafly and Cresskill, N. J., 1858, *Austin;* near Cooper's Glue Factory, Brooklyn, E. D., *Ruger;* Central Park, *R. & P.*—**P. Pennsylvanicum**, L.; common; Central Park, *R. & P.*—**P. incarnatum**, Ell.; borders of ponds, N. Y., *Torr. Cat.*, but not in State Flora, unless it be included under the next; *Le Roy.*—**P. Persicaria**, L.; very common; N. Y.—**P. Hydropiper**, L.; common.—**P. acre**, H. B. K.; common; achenium often lenticular, *Austin.*—**P. hydropiperoides**, Mchx.; not uncommon, *Torr. Cat.*, *Austin;* Staten Island and East New York, *W. H. L.*—**P. amphibium**, L.; Closter and Tenafly, *Austin;* Central Park, *R. & P.:* Var. **terrestre**, Willd.; English Neighborhood, *W. H. L.*—**P. Virginianum**, L.; common, N. Y.; about Tappan and Rockland it occurs with a distinct purple spot in the centre of the leaf, *Austin.*—**P. articulatum**, L.; frequent on Long Island and Staten Island.—**P aviculare**, L.; very common; N. Y.: Var. **erectum**, Roth.; common; N. Y.—**P. maritimum**, L.; both shores of Long Island.—**P. tenue**, Mchx.; common; N. Y.—**P. arifolium**, L.; common; N. Y.—**P. sagittatum**, L.; common; N. Y.—**P. Convolvulus**, L.; common; N. Y.—**P. cilinode**, Mchx.; Jackson Ave., near Dutch Kills, about 3 miles from Hunter's Point Ferry, *Ruger.*—**P. dumetorum**, L.: Var. **scandens**; common; N. Y.

FAGOPYRUM, Tourn.—**F. esculentum**, Moench; wood paths, fields, &c., frequent; N. Y.

RUMEX, L.—**R. orbiculatus**, Gray; Closter, *Austin;* Secaucus, East New York? *W. H. L.;* ("**R. Britannicus**, L."?) wet meadows, *Torr Cat.;* Central Park, *R. & P.*—**R. Brittanica**, L.; Hackensack meadows, between New Durham and Secaucus swamps, may be *R. salicifolius*, Weinmann, *W. H. L.;* Yonkers, *Pooley.*—**R. verticillatus**, L.; Little Snake Hill, *W. H. L.*—**R. crispus**, L; very common; N. Y.—**R. obtusifolius**, L.; quite common, but not reported from N. Y.—**R. conglomeratus**, Murray; Wading River, L. I., *Miller*, extra-limital.—**R. sanguineus**, L.; "meadows and pastures," *Torr. Cat.*, but not in State Flora.—**R. acetosella**, L.; very common; N. Y.

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St

LAURACEÆ.

SASSAFRAS, Nees.—**S. officinale**, Nees ; common ; N. Y.

LINDERA, Thunberg.—**L. Benzoin**, Meisner ; common ; N. Y.

THYMELEACEÆ.

DIRCA, L.—**D. palustris**, L. ; "shady woods, N. J.," *Torr. Cat. ;* Tappan, *Austin ;* Inwood, N. Y., *W. W. Denslow.*

SANTALACEÆ.

COMANDRA, Nutt.—**C. umbellata**, Nutt. ; common ; N. Y.

LORANTHACEÆ.

Phoradendron flavescens, Nutt., is said to have been seen near Elizabeth, N. J., and on Staten Island, but lacks confirmation. The *Arceuthobium* lately reported from the northern part of the State is to be looked for within our limits.

SAURURACEÆ.

SAURURUS, L.—**S. cernuus**, L. ; common ; N. Y.

CERATOPHYLLACEÆ.

CERATOPHYLLUM, L.—**C. demersum**, L. ; common ; N. Y., probably.

CALLITRICHACEÆ.

CALLITRICHE, L.—**C. Austini**, Engelm. ; Closter, &c., common, *Austin ;* Palisades, Staten Island, *W. H. L.*—**C. verna**, L.; common; N. Y. —**C. heterophylla**, Pursh ; Closter, &c., common, *Austin ;* Brooklyn Aqueduct, *Allen.*

PODOSTEMACEÆ.

PODOSTEMON, Mchx.—**P. ceratophyllus**, Mchx. ; Paramus, &c., common, *Austin.*

EUPHORBIACEÆ.

EUPHORBIA, L.—**E. polygonifolia**, L. ; common ; N. Y., *Torr. Cat.*—**E. maculata**, L. ; common, N. Y.—**E. hypericifolia**, L. ; common ; N. Y. ; **E. marginata**, Pursh ; rarely escaping from cultivation.—**E. corollata**, L. ; Monmouth Co., N. J., *W. H. L. ;* Staten Island, *Le Roy.*—**E. Ipecacuanhæ**, L. ; Long Island, *State Flora ;* Woodhaven, *Ruger ;* Staten Island, *Le Roy ;* South Amboy, &c., common.—**E. Cyparissias**, L. ; escape, Chatham, N. J., *W. H. L. ;* Closter, &c., *Austin ;* Flatbush, *Ruger.*

ACALYPHA, L.—**A. Virginica**, L. ; common ; N. Y. : Var. **gracilens**, common ; N. Y.—**A. Caroliniana**, Walt., Ell. ; Princeton, N. J., *Torrey in Gray's Man. ;* Closter, *Austin.*

EMPETRACEÆ.

COREMA, Don.—**C. Conradii**, Torrey ; between Oyster Bay and Hempstead, *Emmons in State Flora;* Mr. Coles, of Glen Cove, writes that he has "sought it very generally in Queens and Suffolk Counties, in the most likely places, without ever finding a single specimen."

URTICACEÆ.

ULMUS, L.—**U. fulva**, Mchx.; Palisades; Glen Cove, *Coles;* Central Park, *R. & P.*—**U. Americana**, L.; common; N. Y.—**U. campestris**, L.; in abandoned grounds.

CELTIS, Tourn.—**C. occidentalis**, L.; not uncommon; N. Y.; Glen Cove, *Coles;* Weehawken, abundant; Closter, scarce, *Austin;* North Salem, *Mead.*

MORUS, Tourn.—**M. rubra**, L.; Bloomingdale, *Torr. Cat.;* Chatham, N. J., *W. H. L.*; Glen Cove, *Coles;* Closter, scarce, *Austin;* Hoboken Heights, *Ruger;* Central Park, *R. & P.*—M. alba, L.; rather common about the city, 86th Street, Astoria, Hoboken, etc., *W. H. L.*; Central Park, *R. & P.*

9. **Herbarium Suggestions.**—No. 5. *Poisoning Plants.*—All phænogamous plants, at least, are not only liable to be attacked by insects when in a dry state, but are pretty sure to be thus destroyed in time if not properly protected. The ferns appear to be mostly free from this danger, and it is not considered necessary to poison a specimen of a fern, unless it be extremely rare.

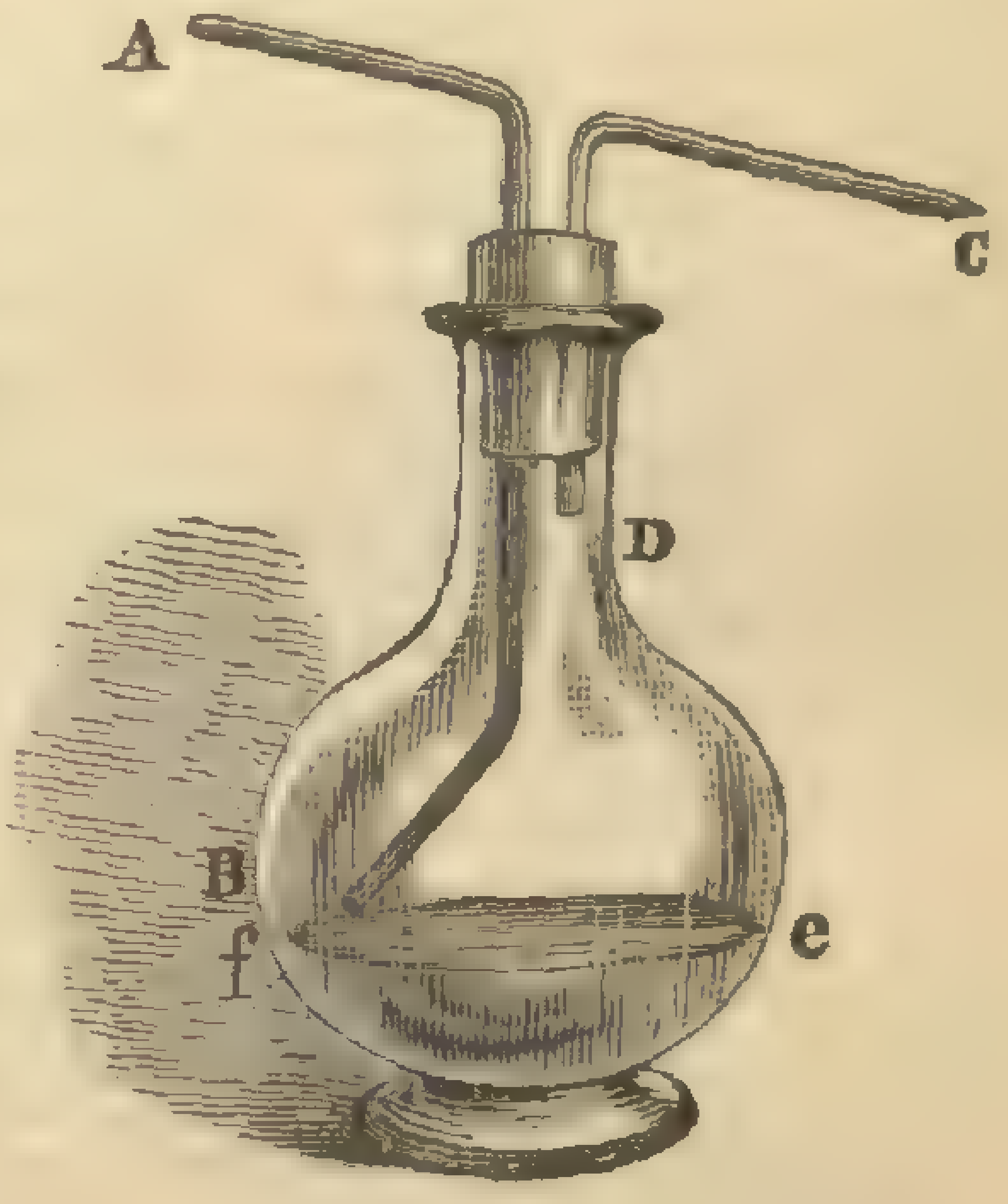
For poisoning we use a solution of corrosive sublimate in alcohol, about one ounce of the sublimate to a quart of alcohol; or the strength may be tested by dipping a black feather in the solution, which should not be strong enough to whiten the feather when dried.

Now there is one precaution with regard to the use of this solution, which sad experience leads me to insist upon at the outset:—corrosive sublimate acts upon all metals in common use, and forms a dark compound which stains anything with which it comes in contact. Hence this solution should never be kept in a metallic vessel, nor be applied with a brush having a metallic ring; and all metals should even be avoided in every process to which the specimen is subjected after poisoning, as, for instance, in gluing.

To illustrate this danger, I will say that I once employed a person to glue a large lot of valuable plants, which I had poisoned, to my herbarium sheets. Aware of the danger referred to, I had provided a glue-pot lined with porcelain, although made of iron. When the job was done, I found, to my disgust, that the sheets of paper were ruined by dark stains in almost every part, and the specimens had to be soaked off and reapplied to fresh sheets. Upon examining into the cause, I found that the porcelain lining of the pot had chipped off in places, exposing the iron; the glue-brush, alternately dipped in the glue and then applied to the poisoned plants, had brought the sublimate and the iron together, and the unsightly color had been distributed wherever the plants or the towel used in pressing them down had touched the white paper.

The solution of corrosive sublimate having been prepared, the specimens may be either immersed or sprinkled. With valuable plants, I have sometimes poured the solution into a large, shallow, dinner plate, such as is used for joints, and immersed the whole specimen for a second therein.

It is usually sufficient, however, and it is far more convenient to apply the solution by sprinkling ; and the application need be made in the tougher specimens only to the more tender parts of the plant which are especially exposed to the attacks of insects—I mean the flower itself, including the receptacle, the buds, and the younger shoots ; thus the axils of the branches should receive special attention.



The accompanying wood-cut represents the most convenient bottle for this application. It will be noticed that it is different in construction from the ordinary "drop-bottle," and does not require any blowing with the mouth through one of the glass tubes, but needs only to be inclined at an angle to discharge a fine stream of the solution wherever desired. D C is the tube through which the fluid escapes ; A B, the tube through which the air enters to supply the place of the escaping stream. The bottle should be filled only to the line f e, below the lower opening of the tube A B, otherwise on inclining the bottle the fluid will flow into this tube and obstruct the entrance of air. When such a bottle is ordered of a glass-blower, unless minute directions are given, he will think you want an ordinary chemist's drop-bottle and will reverse the lengths of the tubes. The extremity C of the discharge tube should be drawn to a very fine point.

After poisoning specimens they are to be laid between driers and placed under a light weight for twenty-four hours, when, as the alcohol is quickly absorbed or evaporated, they will be found to be sufficiently dry.
F. J. B.

10. Notes by Mr. Bower.—The new station of *Asplenium montanum*, Willd., is very much more north than any before mentioned. I have a specimen from Lancaster Co., Penn., but believe it has not yet been reported from New Jersey. It is curious that this species should make such a leap north. *Aspidium fragrans*, Swartz, has been found at Bellows Falls, N. H., and among the Adirondacks, and perhaps a time may come when both may be found growing together. They are plants of similar habits in not producing runners, and, although individual roots may increase so that several plants may be made of one, the natural way of both is to multiply by spores.

The subject of the two modes of multiplication of plants is interesting. Those with running roots do not seed freely. In my garden *Lygodium palmatum*, Swartz, creeps along and now occupies the sod of a bed about 12x24 inches, which is a little lower than that adjoining, but I do not see any seedlings. While young plants of *Aspidium Goldianum*, Hook., and *A. cristatum*, Swartz, var. *Clintonianum*, are frequent in my place, I see no seedlings of *Asplenium thelypteroides*, Mchx ; it increases enough the other way.

Struthiopteris Germanica, Willd., has a habit peculiar in sending out runners two or three inches under the surface, and to a distance of 12 to 20 inches, where a young plant springs up. For this piece of generosity on its part, I have planted it alone, away from other ferns, where its ropy runners may be removed without danger of disturbing other things.

Other plants that produce seedlings with me are *Jeffersonia diphylla*, Pers., some Trilliums, and I see young plants of *Agave Virginica*, L. *Asclepias verticillata*, L., is almost a weed, coming up through the tan in the walks. I should say that the different beds that contain the above-named plants are not common garden soil, but made with much trouble from leaf mould and soil brought from the woods.

There is much difference in plants in adapting themselves to circumstances. *Frangula Caroliniana*, Gray, grows well in common soil, while *Epigæa repens*, L., will not be suited anywhere. I cannot keep *Cypripedium acaule*, Ait., although I have seen it in nearly pure dry sand and in wet sphagnum. It is curious that *C. acaule* has only one bud to each plant. It is the only one with a divided lip, and of our species the only one without a leafy stem. W. B.

11. **Rhus Toxicodendron**, L.—While riding in Chester Co., Penn., near the Delaware State Line, I saw a cow on the bank of the road, three or four feet higher than the roadway, nibbling this plant which grew in the hedge. On my return I enquired of a farmer if cows were known to eat the poison vine. He said he had known such cases, but whether it had any effect upon the milk he did not know.

Some years ago I wished to get *Rhus toxicodendron*. I was informed that the difference between that and *R. radicans* was, that the latter had entire leaves, while the leaves of the other were notched. I have found *R. radicans* at Bloomingdale having entire and notched leaves on the same branch. Subsequently I supposed that aerial rootlets might be a distinction, but I found on the rocks at Bergen Heights *R. radicans* growing up the face of the rocks, the main stem well fastened to the rock by the rootlets, and at the height of six or eight feet from the ground giving off a horizontal branch of several feet in length, and perfectly free from rootlets.

I have seldom found the climbing kind on trees of any height in swamps; there it is more likely to be bushy, or growing on stumps.
J. T. S. S.

12. **Financial.**—Our expenses for the first two volumes exceed our receipts $53.33. There are about $26 due which will probably be paid. As our small mail, if unpaid, must be delivered at the General Office in the city, we have not always leisure to forward it. Those who wish it can insure a more prompt despatch by inclosing to us twenty cents for the remainder of the year. The last number was vexatiously delayed by difficulties in the mailing.

13. **Oaks and Willows.**—We want precise information about the local distribution of these Orders.

Terms—*One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

NEW HEPATICÆ, by C. F. AUSTIN.

1. **Sarcoscyphus Bolanderi**, Austin.—S. pusillus, dense intricate cæspitosus, nigricans, rufo-fuscus et lurido-viridis; caule repente vel apice adscendente 1–3 lineas longo valde radiculoso innovando-ramoso et ex apice prolifero-continuo clavato eflagellari; foliis inferioribus distantibus caule parum latioribus subverticalibus patulis, superioribus imbricatis valde majoribus subdistichis erecto-patentibus, omnibus ovato-rotundis (magis latis quam longis) obscure marginatis margine paullulum repandis apice $\frac{1}{2}$–$\frac{1}{3}$ emarginato-bilobis, sinu acuto seu obtusiusculo, lobis plerumque valde obtusis, areolis distinctis pro genere maximis subconformibus subrotundis confertis subobscuris crassis, intercalaribus valde angustis obscuris; fructu———.

Hab. On exposed rocks, in the mountains of California, *Bolander* (1865).

S. Bolanderi in size about equals the European *S. adustu~~m~~* s (~~*Sarcoscyphus*~~ *adustu~~s~~*, Nees), and is remarkable chiefly for its leaf-cells being the largest of the genus, for the broad leaves being extremely variable in their position (either erectish or widely spreading or even somewhat recurved, and nearly plane or very concave or subcomplicate on the same stem), and for its very long numerous and delicate rootlets. /

S. adustus has the lower leaves somewhat appressed, acutely lobed, and (except the very lowest ones) closely imbricated · and the areolation (about as in *S. Funckii*) is much smaller.

2. **Sarcoscyphus Boeckii**, Austin.—S. valde minutus intricato-cæspitosus læte viridis; caule substricto fragili filiforme (fertili elongato-clavato, sterili ob folia perigonialia interrupto) innovandi-ramoso proliferove eradiculoso? eflagellari? subsemiunciali; foliis caulinis valde distantibus distichis erecto-adpressis ovatis pellucidis bifidis, sinu lobisque acutissimis, margine sæpe scariosa, areolatione *S. Funckii*, involucralibus exterioribus sensim auctis ratione latioribus subimbricatis, interioribus duplo (quam exterioribus) majoribus in urceolam minutam oblongo-campanulatam fere ad apicem connatis, apice subrecurvo acute emarginato (lobis valde acutis); perianthio delicatissimo semiconnato involucro fere æquilongo; capsula globosa; foliis perigonialibus valde majoribus semigloboso-concavis imbricatis brevius emarginatis, lobis sæpe obtusis; perigoniis (2–3) magnis longiuscule stipitatis. / 2

Hab. With *S. ~~densifolius~~* and *Alicularia scalaris*, in the Norwegian Alps, Prof. *Bœck* (1869). /

S. Boeckii is remarkable for its very minute size (about like *Jungermannia divaricata*), distant appressed and very acutely lobed leaves; the involucral ones connate nearly to the subrecurved apex, the perigonial abruptly much enlarged, etc.

The leaf is rather more deeply and acutely bifid, but its shape and texture, and the shape of the fertile stem are almost precisely as in *Gymnomitrium concinnatum*.

S. Funckii is a much larger species, with imbricated slightly se-

1- Gymnomitrium.
2. S. emarginatus.

cund leaves, which are not appressed to the stem, and are somewhat obtusely lobed; the involucre is larger, and shorter in proportion to its size; its leaves are connate only at the base, and have their obtusely lobed apex subincurved or straight, the outer ones much larger and convolute; perianth much shorter than the involucre, and connate only at its base; capsule smaller in proportion, etc.

3. **Scapania Oakesi**, Austin.—Sc. foliis obovatis subpatentibus (sæpe deflexis) convexis arcte complicato-bilobis obtusis serrato-dentatis, lobo dorsali dimidio minore subrotundo minutius dentato, superioribus (præsertim involucralibus) duplo majoribus grossius dentatis margine versus basin carinaque saturate purpureis dentibus valde majoribus calcariformibus (curvatis) armatis; perianthio breviusculo oblongo fere a basi ad apicem leniter recurvo, ore truncato dentato; antheridiis cum paraphylliis (ut sæpe in *Sc. nemorosa* inventa sunt) immixtis.

Var. *α*. Caule erecto 2–3 unciali ex apice prolifero eradiculoso nonnunquam e ventre flagellari (flagellis brevissimis) toto longitudine æque folioso; foliis obovatis vel subtrapezoideo-rotundis basi saturate cæteroquin pallido-purpureis; inflorescentia dioica; foliis perigonialibus valde minoribus oblongis inflatis margine superiore ad basin calcaratis.

Var. *β*. Perianthio longiore fusco-purpureo; foliis longioribus oblongo-obovatis vel subcuneatis subdimidiatis haud vel minus patentibus basi margineque saturate purpureis cæteroquin viridibus, inferioribus magis minusve sphacelatis; inflorescentia monoica; foliis perigonialibus haud brevioribus latioribus magis imbricatis basi excavatis.

Var. *γ*. Caule brevi (circa $\frac{1}{2}$–$\frac{3}{4}$-uniciali) basi decumbente valde radiculoso; foliis magis æqualiter bilobis fere toto læte viridibus, carinæ dentibus minus calcaratis; perianthio breviore apice latiore subplicato, ore inciso-ciliato; perigonialibus ut in Var. *β*.

Var. *δ*. Caule radiculoso; foliis minus dentatis, inferioribus sæpe carina calcaratis, superioribus minus auctis carinæ dentibus minoribus; perigonialibus haud visis.

Hab. Var. *α* and *β*, in the region of the White Mountains of New Hampshire, *Oakes*. Var. *γ*, in the Lake Superior region, Canada, *Macoun*. Var. *δ*, Observation Inlet, Columbia, Oregon, *Dr. Scouler* in Herb. Torrey.

S. Oakesi appears to be very closely allied to *S. undulata*, Var. *purpurea*; but is readily distinguished by the large spur-like teeth, on the carina of the uppermost leaves.

4. **Jungermannia crenuliformis**, Aust., *Hep. Bor. Amer. Exsic. ined. No.* 31.—J. examphigastriata, dense lateque cæspitosa, fusco vel miniato rufescenti-viridis; caule fertili repente substricto simplici sursum increscendo (radiculis plerumque purpureis) valde radiculoso, sterili subadscendente graciliore sursum decrescendo; foliis orbiculatis cellulis confertioribus crassioribus parum majoribus subquadratis marginatis valde concavis (siccatis ob marginem valde

constrictam fere cupulatis) leniter repando-undulatis integris vel subemarginatis e basi radiculigera subventricosa et subappressa oblique patentibus (ad caulem valde oblique insertis) parumper decurrentibus, in caule sterili etiamnum magis concavis distinctius marginatis erecto-verticalibus; perianthio parvo subovato cum involucri foliis plus minusve connato haud vel parum exserto basi radiculoso primum apice subtriquetro acutiusculo et a lateribus subcompresso, uno latere plano vel 1–2- altero 3(–5)-plicato, demum teretiusculo atque apice subrostelliforme, plicis omnino bistriolatis; capsula ovali-globosa; calyptra sæpe violacea.

Hab. On rocks along rivulets, near Closter, N. J.; associated with *Jung. pumila*, With., and *J. fossombronioides*, Aust.; also in Coschocton County, Ohio, *Sullivant.*

Allied to *Jungermannia crenulata*, Smith; but more robust and densely cæspitose; leaves much more concave (when dry almost cup-shaped), composed of smaller cellules, less strongly margined, much more obliquely attached to the stem, and never appressed; color never red; perianth smaller, the angles not keeled, etc.; besides, the habitat is different.

Very distinct from *Alicularia scalaris* in the want of amphigastria, in the less crowded more spreading much less emarginate leaves, etc.

Cells of the leaves subrotund or suboval, obtusely angular, somewhat enlarged but scarcely elongated towards the base; those on the constricted margin (one or two somewhat interrupted rows) more or less quadrate and crowded, and often becoming whitish by age.

On account of the straightish simple stems, and strongly concave leaves (with a constricted margin), the sterile plant has a striking resemblance to some forms of *Sphagnœcetis communis*, Nees.

Mode of growth much as in *Jung. fossombronioides;* but smaller, and with a differently shaped perianth, etc.

5. **Jungermannia Wattiana**, Aust.—J. caule crassiusculo 2–4 lineas longo fragili subflexuoso arcuato subintricato valde radiculoso, gemmiparo spiciformi; foliis erecto-subverticalibus subpatulisve subovatis concavis emarginato-bilobis, inferioribus lobis plerumque acutis, superioribus acutis obtusisve sæpe apiculatis incurvisque, sinu lunulato angulatove, areolis subrotundis majusculis; amphigastriis subobsoletis valde difformibus plerumque ex ovato subpiliformi-acuminatis in subulatam transeuntibus margine hic illic ciliato-appendiculatis apice incurvis; perianthio terminali parvo inflato lageniformi-ovato, apice (contracto) albido, ore ciliato; involucri foliis parum majoribus subundulatis minus profunde bilobis; colore fusco-viridi vel brunneo.

Hab. On the ground; associated with *Sphagnœcetis Macounii*, *Scapania brevicaulis*, etc., in the Lake Superior region, Macoun, (1869). Communicated by D. A. P. Watt, Esq., of Montreal, Canada.

About the size of *J. excisa*, Dicks.—Remarkable for the small lageniform-ovate perianth, its contracted mouth shorter than in *J. Gillmani.* The gemmiparous stems are much as in *J. Helleriana*

and *J. porphyroleuca,* Nees. They are abruptly contracted near the middle into a dense obtuse spike, which is clothed with closely appressed leaves, of a loose oblong areolation. Gemmæ pale green.

6. **Jungermannia Sullivantiæ,** Aust.—J. caule arcte repente flexuoso late cæspitoso; foliis subovatis caule parum latioribus albidis dissitiusculis erecto-patulis vel subhorizontalibus subconcavis planisve basi valde angustata sessilibus ad $\frac{1}{2}$–$\frac{2}{3}$-bifidis, sinu obtuso, laciniis valde acutis subdivaricatis aut subconniventibus; perianthio in ramulo ventrali perbrevi terminali valde plicato obovato-oblongo sub pressura obconico primum triquetro demum tereti, ore profunde circa 10-fido eodemque numero plicato, laciniis subconniventibus serratis subintegerrimisve; foliis involucralibus tribus majoribus erectis plerumque bi(–tri)-fidis margine externa plerumque unidentatis, uno ex tribus omnino integro angustiori valde obtuso heteromorphio amphigastriforme.—*J. bicuspidata,* var. 2, Sulliv. Musc. Alleghan. n. 241.

Hab. On decayed wood, Ohio, *Sullivant;* Illinois, *E. Hall.*

Remarkable for the very narrow base of the leaf, and for the mostly bifid involucral leaves, with a large tooth on the outside near the middle or towards the base. One of the three involucral leaves (the ventral one) is usually narrower than the others, of an oblong shape, very obtuse and entire at the apex. Color of the whole plant whitish or very pale.—Resembles small forms of *J. bicuspidata,* Linn., in the leaves, but differs very widely in the shape of the perianth. *J. extensa,* Taylor, Syn. Hep., p. 685, differs in the linear-lanceolate perianth with the mouth denticulate. *J. supina,* l. c., p. 684, differs in the unequally bifid leaves, &c.

7. **Jungermannia Gillmani,** Aust.—J. caule abbreviato dense cæspitoso prostrato subarcuato e ventre valde radiculoso ex apice valde incrassato et decendente prolifero-continuo; foliis orbiculato-ovatis verticalibus subconcavis laxe textis bifidis, inferioribus sinu dentibusque plerumque acutis, superioribus valde majoribus plus minusve undulatis emarginato-bilobis, lobis plerumque rotundatis nonnunquam apiculatis, sinu plerumque obtuso; amphigastriis filiformibus vel filiformi-subulatis aut sæpe sublanceolatis nonnullo valde inæqualiter et profunde (raro subæqualiter et breviter) bifidis cauli adpressis, apice incurvo, basi in uno vel utroque lateribus uniciliato-appendiculata; perianthio dorsali (adspectu terminali) sessili exinvolucrato (vel raro brevipedicellato atque subinvolucrato) verticali obovato-lageniforme antice subgibboso, apice albido valde angustato profunde laciniato (semper?), ore ciliato.

Hab. In a cave in a cliff of Potsdam sandstone, Traine Island, Lake Superior (Michigan), *Henry Gillman* (1867).

About the size and with much the general appearance of *J. intermedia,* Lindbg., or *Scapania brevicaulis,* Tayl. Color fuscous- or pale green. Stems cæspitose, 1–3 lines long, thick, upwardly much enlarged, densely radiculose underneath, terminating in a turion-like descending proliferous apex; innovations subventral. Rootlets long and intricate, fuscous, most numerous from underneath the turion-like apex of the stem. Leaves vertical, orbicular, ovate-orbicular, or sometimes even broader than long, subconcave, emarginate or bifid, and often slightly narrowed at the apex, obscurely margined, at least the upper ones, which are much enlarged and more obtusely and less deeply lobed and undulate; lobes usually very obtuse or rounded, but often acute or acutish at the apex, frequently apiculate; sinus varying from very broad and obtuse in the upper leaves to narrow and acute in the lower ones; areolation large and rather lax. Amphigastria appressed to the stem and more or less hidden among the rootlets, setaceous or subulate, or the uppermost ones sometimes lanceolate, usually composod of 2–3 rows of cellules, often, however, of a single row, and not infrequently (the upper ones) of 4–6 or more rows, mostly entire but sometimes (the broader ones somewhat equally, the narrower ones very unequally) bifid, mostly with an erect cilia-like tooth on one or both sides at the base, the apex incurved. Perianth situated on the back of the turion-like apex of the stem (much as in *Fossombronia!*) vertical and at a right angle to the stem, mostly sessile and without involucral leaves, rarely short-pedicled, and then with 1–2 leaves on the short stalk, obovate-lageniform (suddenly much contracted above the middle into a long narrow neck), somewhat gibbous *on the front side*, the mouth slightly funnel-shaped, ciliate, and at length incised. Pistillidia numerous. Antheridia in the axils of enlarged leaves near the apex of the stem and innovations. Although the base of the perianth is included between the upper pair of stem-leaves, these have no connection with and are arranged without reference to it. Their base is fully 2–3 times as broad as the base of the perianth and obliquely attached to the stem, and their apex points in a different direction from that of the perianth. Stems are found bearing perianths of both the present and the previous year's growth; these contain numerous pistillidia, which, notwithstanding the presence of antheridia, are all sterile.

8. **Sphagnœcetis Macounii**, Aust.—Sph. caule intricato e ventre stolonifero vel innovante ramoso parce radiculoso nonnullo subjulaceo sursum decrescendo atque apice gemmigero; foliis arcte et laxe imbricatis ovali-rotundis maxime concavis appressis vel oblique subpatulis angustissime hyalino-marginatis integris et integerrimis aureo-viridibus nitidissimis elegantissime punctato et substriolato-areolatis, intercalaribus latis vitreo-pellucidis; amphigastriis subobsoletis ovato-lanceolatis; caule gemmigero proprio albescente stoloniforme succulento subclavato, foliis arcte appressis subechlorophyllosis tenuibus laxissime suboblongo- et distinctius striolato-areolatis apice subemarginatis erosis; gemmis pallidis ovalibus; fructu ignoto.

Hab. On damp ground in the Lake Superior region, associated with other Hepaticæ; also with *Hypnum stellatum*, *H. revolvens*, *Myurella julacea*, *Blindia acuta*, etc.

An elegant species,—scarcely as large as *Gymnomitrium concinnatum*, Corda, and possibly belonging to the section *Scalariformia* of the same genus, but in most respects it resembles a Sphagnœcetis.

Remarkable for the strongly concave leaves, with the margin much constricted in the dry state, as in *Jung. crenuliformis*, Aust., and *Sphagnœcetis communis*, Nees.

The leaves are of a beautiful golden green color, and shine as if polished or glazed. They are composed of largish punctiform cells, which have the contents collected into a somewhat stellate form, and are arranged in straightish rows, the marginal ones scarcely differ from the others, while those at the base in the centre are considerably enlarged ; intercellular spaces rather broad and of a glassy transparency ; dorsal margin subdecurrent, its cellules not elongated. Cells of the stem larger and oval-hexangular, otherwise much like those of the leaves.

The gemmiparous stems, on account of their whitish and closely appressed leaves, look very much like the ordinary stems of *Gymnomitrium concinnatum ;* cellules of the leaves larger and much more distinctly arranged in rows than are those of the ordinary leaves.

9. **Madotheca Bolanderi**, Austin.—M. caule subsimplici flexuoso siccitate subtortuoso tumido 1–2 uncias longo (cum foliis) circa 2½ lineas lato inferne defoliato ; foliis dense imbricatis dimidiato-ovato oblongis obtusis planiusculis patentissimis subsquarrosis in siccis magis minusve convoluto-decurvis cellulis parum crassioribus submarginatis, margine repanda vel hic illic caudato-dentata, ventrali haud inflexa rectiuscula haud expansa, dorsali ad basin longe protracta caulemque obtegente, cellulis rotundis subobscuris haud fulgentibus subuniformibus ; lobo fere discreto parvo lanceolato-subulato, falcato contorto canaliculato obtuso vel acuto, margine repando-undulato, basi valde inæquali longe decurrente parce caudato-lacinulato ; amphigastriis caule vix latioribus lingulato-ovatis oblongisve-obtusis acutisve nonnunquam apiculatis sæpe apice fissis, marginibus longe decurrentibus repando-undulatis (præcipue versus basin) caudato-lacinulatis ; perianthio magno e basi breviter obconica late ovato subcompresso superne leniter (circa 5-) undulato-plicato subtus versus basin bicarinato alatove? versus apicem acute 1-nervo, ore angustato truncato minute ciliato ; capsula ovali ; elateribus uni(–bi)-spiris ; foliorum involucralium lobis valde inequalibus acutis subdenticulatis crenulatis? marginatis, amphigastriis acute bifidis.

Hab. California, *Bolander* (1865).

The chief characters of this species are the short, tumid, subflexuous and slightly twisted, nearly simple stems, naked below ; the oblongish (when moist), nearly plane and widely spreading, rather distinctly margined upper leaf-lobe, its lower margin not in the least expanded nor inflexed, its dorsal margin expanded into a rounded auricle which stretches far over the stem; the long-decurrent, tortuous and crisped, and more or less caudate lower lobe and amphigastria; the large perianth, sharply 2-keeled or somewhat winged underneath, and indistinctly nerved above, the very acute and acuminate lower lobe of the involucral leaves, and the oval capsule. The upper lobe of the leaf is sometimes slightly undulate on the lower margin ; when detached from the stem both its margins are frequently slightly ascending, giving it a subconcave appearance. There are frequently 1–2 or 3 caudæ-like teeth, chiefly towards the base, on the upper margin. There are usually 3 *caudæ* on each side of the amphigastria towards the base.

Probably closely related to *M. Niesiana*, Lindbg., Synop. Hepat., p. 271; but that does not appear to be sufficiently described, and it is said to have the lower lobe of the leaf oblong, and the amphigastria obtuse.

10. **Madotheca Sullivantii**, Aust.—Caule plerumque simpliciter pinnato siccando apice valde decurvo, foliis madefactis erectioribus, margine ventrali stricta multumque involutiori, cellulis majoribus punctato-stelliformibus, perianthio ventre late carinato, carina biangulata, etc., facile ab *M. involuta*, Hampe, distinguendua.—*Aust. Hep. Bor. Amer. Exsic. ined., No.* 94.

Hab. In the Alleghany Mountains, *W. S. Sullivant* (1845).

About the size and with much the general appearance of large forms of *Radula pallens*.—Readily recognized by the very straight and strongly involute ventral margin of the leaf, etc.

11. **Lejeunia Sullivantiæ**, Aust.—L. caule stricto appresso parce diviso vel subsimplice ; foliis subimbricatis oblique obovato-rotundis erecto-patentibus margine subrepandis, areolis parviusculis subobscuris versus marginem sensim decrescentibus, lobulo subcucullato unidentato ; amphigastriis caule duplo vel triplo latioribus ovato-orbiculatis sinu angusto bifidis, laciniis semiovatis acutiusculis : sterilis.—*Hepat. Bor. Amer. Exsic. ined. No.* 96.—*L. serpyllifolia*, var., Sulliv. Musc. Alleghan. No. 273.

Hab. On the bark of trees and on the ground! in the Southern States, *Sullivant*, (1845); Louisiana, *Prof. A. Featherman* (1870).

About the size of *L. serpyllifolia*, or a little larger.—Readily distinguished by its straightish subsimple stems, and by the subopaque smallish cellules, which sensibly diminish towards the margin of the leaf.

12. **Frullania Wrightii**, Aust.—F. dioica, di(-tri)-gyna ; caule brevi prostrato subfasciculatim vel vage ramoso ; foliis imbricatis subrotundis obliquis valde convexis oblique decurvis siccatis subconvolutis apice et margine inferiore subinflexis basi inæqualiter cordatis margine integerrimis, areolis parvis haud convexis basilaribus parce majoribus marginalibus subquadratis ; auriculis mediocribus cucullato-galeatis rotundis subovatisve basilaribus et apicalibus explanatis cauli subcontiguis vel subdistantibus, lobulo dentiformi interjecto parvo plerumque lineari-lanceolato ; amphigastriis late obovatis ad ¼ emarginato-bidentatis margine repando-dentatis caule sesqui vel duplo latioribus ; ramulo fructifero perbrevi subclavato vel adspectu fere capituliforme arcte foliato; foliis involucralibus valde majoribus basi sensim angustata sessilibus uno alterove cum amphigastrio coalitis, lobulo dorsali oblongo integerrimo vel subrepando apice cucullato-inflexo, ventrali dimidio breviore ovato-lanceolato sæpe subfalcato acuto planiusculo vel subcanaliculato margine me-

dio hic illic dentato vel integerrimo basi uni-lacinulato : pl. masc. ignota.

Hab. New Mexico, *Chas. Wright* (1861), in Herb. Sullivant.

Has much the general appearance of some forms of *F. æolotis*, Nees; but that has the leaves scarcely imbricated, much less convex, less decurved, more ovate, repand and subcrenulate on the margin; auricle smaller, often sublunulate, or most frequently explanate; amphigastria rather wider and rounder; ordinary leaf-cells larger, the central ones much more inflated, the basal ones strikingly convex, etc.

Remarkable for the cucullate apex of the upper lobe of the involucral leaf.—The perianth is very young, but appears to be somewhat winged on the keels, etc., as well as on the margin. The auricle is rather variable—often compressed, sometimes nearly touching the stem, at others about as distant as in *F. æolotis;* at the base and apex of the stem and branches it is always expanded into a suboval or oblong obtuse lamina, with a largish triangular-lanceolate tooth near its base.

13. **Frullania Sullivantiæ**, Aust.—F. monoica, minuta, pallida, vage ramosa; foliis oblique ovato-rotundis obtusissimis convexis apice decurvis cellulis crassioribus coloratis vel in medio dispersis vel in linea moniliforme brevi et e serie singula aut duplici et ultra exstructa collectis ornatis; auricula parviuscula obovata et obovato-rotunda cauli adproximata (vix stipitata) basi latiuscula folii marginem haud attingente; amphigastriis obovato-rotundis caule parum latioribus planis margine subrepanda utrinque subunidentatis; perianthio subimmerso obovato valde obtuso subtriquetro, dorso convexo, ventre breviter unicarinato utrinque leniter angulato.

Hab. On trees in a cedar swamp near Urbana, Ohio; detected by Mr. W. S. Sullivant. (Sparingly mixed with *Radula obconica* and *Phragmicoma clypeata* in Musc. Alleghan.)

Smaller than the smallest forms of *F. Grayana*, Mont.; from which it differs in its vague ramification, flatter and more closely creeping stems; always obtuse leaves, with the bead-like cellules in the centre most frequently collected into an irregular patch, or when forming a moniliform chain they do not run so obliquely through it, and consist of two or more rows (rarely of a single row); auricle shorter and placed close to the stem and parallel with it, its base not extending to the base of the leaf, its mouth less contracted; amphigastria smaller (about 1½ times as wide as the stem), plane, angular or repand, and usually with a distinct obtuse tooth on each side above the middle; involucral leaves and amphigastria shorter, their divisions less canaliculate; perianth more immersed, the apex retuse or obtuse and crowned with a shorter apiculus, whose mouth is slightly expanded and strongly papulose! inflorescence monœcious, etc.

14. **Frullania pendula**, Aust.—Caule prostrato alternatim bipinnato; ramulis strictiusculis divaricato-patentibus apice vix attenuatis; foliis imbricatis oblique lateque cordato-ovatis (magis latis quam longis) concavis integerrimis apice obtusissimis incurvis margine

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ventrali abrupte subdecurrentibus, auricula parva obovata vel subclavata pendulo-deflexa a caule distante tecta, lobulo dentiforme interjecto minutissimo e serie singula cellularum minutarum exstructo, areolis parvis rotundis vel ovalibus maxime stelliformibus; amphigastriis maximis reniformi-ovatis (sesqui vel duplo latioribus quam longis) emarginato-bilobis, sinu acuto, lobis latissime ovatis subacuminato-apiculatis, margine plana integerrima, medio umbonnato; spicula masculina rotundo- vel oblongo-ovata; fructu . . .

Hab. Viti or Fiji Islands, *Dr. B. Seemann*, No. 834, partly (1860) in Herb. Sulliv.

A rather large species, the stems 2–3 inches long by about 1 inch wide.—Remarkable chiefly for the auricle being suspended below the leaf and covered by the amphigastria, which are usually as large as the leaves and often twice as broad as long, with the lobes acuminate.

15. **Fimbriaria violacea**, Aust.—Differt a *F. Bolanderi*, Aust.: statura majore, fronde densissime areolata haud marginata subtus latius costata densius radiculosa, squamis brevioribus vix solutis, pedunculo crassiori breviori? basi submultum et toto longitudine parce piloso nigro-purpureo, receptaculo femineo majore subconoideo siccato haud umbonato plerumque tricarpo subtus longissime barbato et piloso, (pileis tubulosis intus [ut in radiculis] muriculatis), perianthiis subdependentibus subpyriformi-ovatis 12–16-fidis violaceis; a *F. echenella*, Gottsche, et *F. elegans*, Spreng.: fronde angustiore rigidiore concavo-canaliculata siccitate arcte involuta, receptaculo femineo haud tuberculoso, etc.

Hab. California, *Bolander* (1866).

About the size of *F. tenella*, Nees, and with much the same shaped fertile receptacle.—The specimens are immature and the peduncle (about 6 lines high) is probably not fully developed. The frond is 1–1½ lines wide by usually less than 1 inch in length, rigid, strongly concave-caniculate, when dry involute (as in *Grimaldia barbifrons*), densely areolated and pale green above, convex-thickened densely radiculose imperfectly squamulose distantly subpunctate and dark purple beneath. The floriferous innovations are very small, often scarcely exceeding a line in length, and much less squamulose than in *F. Bolanderi;* the antheriferous ones are usually smaller than the others. The fertile receptacle is areolated above like the frond, nearly smooth, and usually 3-fruited. The perianths are of a fine violet color, and not subhorizontally spreading as in *F. Bolanderi*.

In *F. elegans* there are no scales underneath the much less rigid broader and exareolated frond; the pale peduncle often arises from the apex of a continuation of the main frond; the lateral innovations are larger and more fully developed (1–2½ lines broad), etc. However the chief characteristic of both this species, and *F. echinella*, is the very prominently tuberculated upper surface of the fertile receptacle.

16. **Notothylas**, *Sulliv. Musc. Allegh.* (1845).—(Carpolipum, *Nees. Syn. Hep. p.* 591.—Carpobolus, *Schweinitz in Journ. Acad. Philadelph.* II. p. 367. f. 2.)—The elaters of this genus (*funiculi*, Nees, l. c.) are

1-J.24.

essentially as in *Anthoceros,* but broader and shorter and still more heteromorphous. Like the spores, they are developed in a delicate globular utriculus, which contains from one to four of them, and which disappears upon their arriving at maturity. They usually separate at maturity, but may occasionally be seen adhering together, or even closely adhering to the spores. They appear to about equal the spores in number, and nearly in size, and are of a yellowish brown color, hyaline, much compressed and angular, and of a great variety of odd shapes,—usually oblongish but often (when borne singly) nearly or quite as broad as long. They are frequently variously marked (within) by faint lines or *fibres,* which are sometimes reticulated, sometimes spiral and sometimes annular, but often irregularly tortuous. The coloring matter is mostly collected into the fibres and angles, the latter of which are obtusish and obscurely thickened.

Spores at first in 4s *(utriculi matricales seminum quadrispermi!),* at length mostly separating, roundish, flattish, obscurely angled, and nearly smooth. Antheridia very large, composed of large inflated convex cellules, usually borne singly in deep pits in the upper surface of the frond, which are surrounded by a jagged margin.

Rootlets smooth or minutely granulose (within).

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17. **February Meeting.**—At the meeting of the Torrey Botanical Club held February 27, 1872, Prof. John Torrey in the chair, Dr. Parry laid before the meeting two rare plants from Oregon, collected by E. Hall—*Coptis aspleniifolia,* Salisb., figured in Hooker's Flora Boreali-Americana, and a new species of *Isopyrum,* named *Hallii* by Dr. Gray after the discoverer. This last would be a very desirable addition to the garden, being quite ornamental in foliage and flower, and an early bloomer.

Mr. Leggett presented to the College Herbarium a specimen with cone of a new species of pine—*Pinus Elliottii,* Engelm.—from South Carolina, sent by H. W. Ravenel, Esq.

Also were shown the following new books belonging to the Herbarium Library :

Flora of the Galapagos Archipelago. J. D. Hooker.

Internationales Wörterbuch der Pflanzennamen. W. Ulrich.

Geschichte und Litteratur der Lichenologie. A. von Kumpelhuber.

Die Vegetation der Erde. A. Grisebach.

Sertum Tianschanicum. Baron Fr. v. d. Osten-Sacken und F. J. Ruprecht.

Wonders of Vegetation. Translated by Prof. Schele de Vere.

Botanische Theil ; Fungi, Hepaticæ and Musci ; Voyage of the Frigate Novara around the World. H. W. Reichardt.

Sketches of the Botany of Pennsylvania. By Prof. Thos. C. Porter, Easton, Pa.

Members present, sixteen, viz. : Messrs. Torrey, Paine, Wilber, Hogg, Ruger, Leggett, Hall, Merriam, Wood, Parker, C. B. Gerard, McIntyre, Hyatt, Gross, Parry, Le Roy. P. V. Le Roy, *Sec.*

18. **Wood's Plant Press.**—The method of drying botanical specimens

heretofore generally practised, a method more particularly described in the November and December Bulletins, is tedious and burdensome. Few, we think, will deny this. The collector who attempts to keep up with the season of flowers must have in use an immense quantity of paper—must rearrange specimens and paper at least twice a day—must thoroughly dry the sheets separately daily—all this besides the collecting makes botany a *business* rather than a recreation, and leaves too little time for study or any other duty.

It is the drying-press which is in fault—that old-fashioned press used by botanists from Linnæus down. True, it has done good service, and so has the sewing-needle. Shall the sewing-*machine* be rejected on this account? If the intolerable drudgery of plant-drying by *absorption* can be obviated by an invention, why not try it? Wood's *wire-press*, described in the "Botanist and Florist," p. 10, and "Class-Book," p. 15, is such an invention, unpatented, free to all collectors. It dries by *evaporation* rather than absorption, and thus makes available all the sources of heat, whether natural or artificial. It requires comparatively but little paper—less than half the amount needed in the old process; hence it is portable, and serves the double purpose of portfolio and press. It requires no changing of specimens and papers, no drying of damp and mildewed sheets.

In fair weather the wire press dries in the wind and sunshine; in foul weather, by the fire. In either case, after one or two days the specimens will be found thoroughly cured, and as bright in colors as is possible by any other known method.

To the travelling collector this form of press is invaluable. With it so light is his labor in drying his specimens that it occasions him little if any delay, and so light his luggage that a single donkey will suffice him in lieu of half a dozen for its transportation. With this simple press the writer, during a single year, cured more than three thousand specimens, in a protracted journey of about fifteen hundred miles. A. W.

19. **Drop-Bottle.** *See the Figure in the last No.*—I have the jet, C, turned obliquely upwards; the air-tube, A, turned downwards; and at the other end of the jet, D, a small bell made in the tube to hold a wisp of cotton for a much needed *strainer*. D. C. E.

20. **Marsilia quadrifolia, L.**—I have from Florida a Marsilia so labelled, but it is more likely to be one of the western species, *M. uncinata*, Braun, for instance. D. C. E.

21. **Euphorbia Helioscopia, L.**—Abounds near the river bank, and farther back across the river, opposite to the Main Street dock, Poughkeepsie. I have never seen it nearer to New York City.
Jas. Hyatt.

22. **Cryptogamic Publications.**—We have received *The Erysiphei of the United States*, by M. C. Cooke, M.A., and C. H. Peck, reprinted from the Journal of Botany, for January, 1872.—Also a prospectus of *Grevillea, a Monthly Record of Cryptogamic Botany, with Illustrations,*

from Mosses downwards, "somewhat like Hedwigia." 5 shillings sterling, post free. Address M. C. Cooke, 2, Grosvenor Villas, Junction Road, London, N.

23. **Quercus and Salix.**—After reading De Candolle's experience in determining the species of Quercus, one with more limited means of comparison may well hesitate before pronouncing positively. The stable distinctions necessary for classification are not always to be found, though the conviction remains that such distinctions must exist The scientific study of the variations of specific forms is one of the most pressing needs of Biology. We shall welcome any observations tending in this direction. The opening season will soon afford an opportunity for a study of the Willows of our district, about which we are quite unfurnished with data. We invite those of our friends who have the opportunity to study this family to communicate the results to us, and specimens to the Club Herbarium.

Of *Quercus bicolor*, Willd., Mr. Austin writes that it is "most nearly related to *Q. macrocarpa*, Mchx. The acorns are perfectly similar in both, and unlike in some respects those of any other species: a true *White Oak*." Of *Q. prinus*, L.: "I have never been able to see wherein the var. *monticola* differs from this." Messrs. Austin and Allen both express a decided conviction that *Q. tinctoria* is a very distinct species. That Oaks may hybridize, we have received from Dr. Engelmann a remarkable example in a specimen labelled "*Quercus palustris-imbricaria, hybris*, near St. Louis, single tree, May, 1870."—We had supposed the Chestnut Oak, *Q. prinus*, var. *acuminata*, to be one of our most common Oaks, but finding no specimen from this region in our possession, we referred to the State Flora, where Chemung Co. is the only locality given. We have found it in Connecticut, and Gray's Manual says it is common in the Middle States.

BROUSSONETIA, Vent.—**B. Papyrifera**, Vent.; Laurel Hill, L. I., *Ruger;* fruits finely in Greenwood Cemetery, *W. H. L.;* frequent in cultivation or springing up from suckers.

URTICA, Tourn.—**U. Gracilis**, Ait.; common; N. Y.—**U. dioica**, L.; not rare about roadsides; N. Y.; Staten Island; Bergen Hill; Train's Meadow, etc., *Ruger;* Glen Cove, *Coles.*

LAPORTEA, Gaudichaud.—**L. Canadensis**, Gaud.; common; N. Y.; Fort Washington, *W. H. L.*

PILEA, Lindl.—**P. pumila**, Gray; very common; N. Y.

9/ **BOEHMERIA**, Jacq.—**B. cylindrica**, Willd.; "In shady swamps, Bloomingdale and Weehawken," *Torr. Cat.*, Central Park, *R. & P.*; Closter, common, *Austin;* rather common on L. I.; the var. **B. lateriflora**, by Bedford Creek, *Ruger.*

Terms—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

PLATANACEÆ.

PLATANUS, L.—**P. occidentalis**, L. ; common ; N. Y. ; Central Park, *R. & P.*

JUGLANDACEÆ.

JUGLANS, L.—**J. cinerea**, L. ; rather common ; in woods, Manhattanville, *Torr. Cat. ;* Central Park, *R. & P.*—**J. nigra**, L. ; not uncommon ; woods, *Torr. Cat. ;* native, Walnut Ridge, Passaic Co., N. J., also Sussex Co., *Austin ;* Central Park, *R. & P. ;* Glen Cove, *Coles.*—**J. hybrida**, LeConte ; vide *Torr. Cat.* and *State Flora.* Some of our Flushing friends should look into the history of the seedlings said to have been raised by Mr. Prince.

24. **Danthonia**, DC.—**D. Alleni**, n. sp.—Culm sparingly branched, stout, erect, about three feet high, triangular and compressed (at least below in the dried state), and with the narrow side concave. Leaves moderately long, flat, about two lines wide ; midnerve conspicuous beneath but not visible on the upper side ; sheaths naked and polished, the lower ones large and conspicuously imbricated ; ligule with numerous long and delicate fringes. (Terminal) panicle decompound, subsecund, rather open, its branches longish and (each one) subtended by a subulate bract, which is about as long as the glumes. Glumes about reaching to the bristles of the uppermost flowers of the spikelets. Spikelets about 15 in number, about 10-flowered, compact, terete, 6-7 lines long. Lower (outer) palea clothed with rather numerous long, silky hairs, and with a distinct tuft of the same at the base, about half as long as its own awn, distinctly about 7-nerved ; awn very slender, setaceous, nearly erect, not twisted except at the base, where it is pale in color, very minutely and closely scabrous, and somewhat bent sideways ; (lateral) teeth long-awned. Lateral panicles (only a single one in the specimen before me) * smaller and partly included.

This species is readily distinguished from its congeners in this country: by its rather tall and stout, somewhat branched culm ; naked, flat, rather broad leaves of moderate length, with naked and polished sheaths ; larger, open panicle, with the branches bracted at the base ; spikelets longer than the glumes; etc.

Detected by Dr. Allen, at Rockaway, L. I.

D. compressa, Austin.—[Noticing a disposition among botanists to ignore this species, I was led recently to re-examine it and to compare it with our other species. I find it to be very distinct, as follows :]

Somewhat tufted. Culm slender, 2 feet high, geniculate, ascending, decumbent at the base, the top nodding (at least in flower), trigonal, often compressed, the narrowest side concave, smooth (or very minutely roughened only just below the joints). Leaves very long and narrow, the radical ones often reaching the panicle, the uppermost usually overtopping it ; sheaths naked ; ligule with long, silky fringes. Spikelets racemose-panicled, about ten in number, and each about 5-flowered. Florets with a very conspicuous tuft of silky hairs at the base. Outer palea with rather numerous long hairs on its surface, about half the length of its awn, its teeth long and slender and awn-like ; awn setaceous, slightly bent sideways, or often erect, pale at the twisted base, not twisted towards the apex. Branches of the panicle about five in number, the lowest one usually deflexed in fruit, the second one widely spreading, the rest erect.

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* I find in one of two specimens just sent me, that there is a branch from each joint! with the spikes mostly wholly included in the sheaths.

Found growing abundantly, side by side with *D. spicata*, in open places in woods, near Little Falls, New York, in July, 1868, and August, 1869. It has also been found in Pennsylvania (Porter), and New England (H. G. Jesup).

D. spicata, Beauv.—Differs from *D. Alleni* in its much smaller size, simple culms, and in the branches of the panicle not subtended by bracts ; from *D. compressa* in its straight and erect culms, and much shorter leaves ; from both in its usually (not always!) terete culms ; more or less hairy and at length convolute leaves with the ligule shorter fringed ; in its spiked-panicle with the branches all erect-appressed in fruit ; in the much shorter and fewer hairs at the base of the flower and usually on the back of the outer palea ; in the outer palea being furnished with a much shorter and stouter awn, which is strongly bent to one side, dark colored at the strongly twisted base, more or less twisted to the apex, and rather more coarsely and distinctly scabrous ; the teeth of the outer palea are also shorter, often very short and obtuse.

D. sericea, Nutt.—Is readily distinguished from all the preceding by its much larger glumes and much more hairy flowers. In general habit it resembles *D. spicata* very much, but, besides the above-mentioned characters, it is more robust, the leaves are more hairy, and the awn and teeth of the lower palea are much longer.

C. F. Austin.

25. Popular Science.—It is a good sign that publishers are seeking to feed the growing appetite for scientific knowledge, but it is a great mistake to publish books professing to impart information, unless the writer or translator has some knowledge to impart. A friend sends us some criticisms, a few, at least, of which we think it proper to print in the Bulletin, as the book to which they refer was introduced by it into good company.

"*Wonders of Vegetation, translated by Schele De Vere,*" noticed in the last number of the Bulletin among the new books belonging to the Herbarium Library, seems to be a work rather out of place where it is, and, perhaps, better adapted to the Zodiacal botany of the agricultural department, or for the private libraries of the extra members legislated last year into the Club. It certainly does, however, recount remarkable wonders of vegetation, *e. g.*, p. 123 : "It is here, [Tanjourra] especially, that the *Asclepias gigantea* is found growing ; *a prickly acacia* covered with a number of exuberant lianes." Pp. 243, 244 : "*Vallisneria spiralis,*" * * * "the marvellous phenomena which it presents at the time of flowering. *The female flowers appear floating on the surface, as if in anxious expectation of others which they are to fertilize.* As if in obedience to their call, the *male flowers, borne upon a long spiral stem, gradually rise from the bottom of the pond, unrolling the long flower-stalk, turn after turn,* till they also reach the surface. Here they meet the first comers; they touch, and immediately begin to retreat once more to their dark homes beneath the waters, where they ripen their seed, and provide for new generations." P. 110: "Mount Lebanon *separates the Holy Land from Syria,* above whose loftiest mountains it towers. The range has the form of a horse-shoe, and measures *not less than three thousand miles in length.*"

These are but specimens. The italics are ours.

26. **Erodium**, L'Her.—I had the good fortune to find *Erodium cicutarium*, L'Her., in full flower yesterday, at Poughkeepsie, near the Fall Kill Creek and the Hudson River R. R. There was a small patch of it a few inches square under a red cedar, *Juniperus Virginiana*, L. The ground looked to the south-west. Of course the plant was perfectly wild and taking care of itself successfully.

April 9, 1872. JAMES HYATT.

27. **Marsilia quadrifolia**, L.—Found at Dallas, Dallas Co., Texas, July, 1870. J. BOLL.

28. **Marsilia longipes**, *n. sp.*, Austin.—About the size of *M. vestita*, H. & G., but more slender and much less hairy; sporocarp oblong- or ovate-lanceolate, about two and a half to three lines long by less than one line in thickness, continuous with the peduncle, which is an inch or more in length. Mixed with the specimens of *M. vestita* from the Herbarium of Dr. Gray, collected in Oregon, in 1871, by *Elihu Hall.* C. F. A.

29. **Maples.**—March 12th, 1871, the Silver Maples in the streets of Brooklyn were in bloom. This year, the first appearance of flowers upon the same trees was April 5th, a difference of twenty-four days, so that our season is now about three or four weeks later than last year. It seems to be a general impression that the *Acer rubrum* blooms earlier than *A. dasycarpum*, but with us the latter is always ten days or two weeks the earlier.

The order of blooming is: 1. A. dasycarpum; 2. A. rubrum; 3. A. platanoides; 4. A. saccharinum; 5. A. pseudo-platanus.

J. S. M.

30. **New Publications.**—1. *Twenty-third Report of the Regents of the University on the New York State Cabinet of Natural History for the Year* 1869: *Report of the Botanist; Printed in advance of the Report: Albany*, 1872; pp. 135, with six colored plates of Fungi.—In this Report Mr. Peck makes another large and valuable contribution to the Flora of the State, especially the Cryptogamic, sixty-seven of the Fungi and one Alga being new to science. He gives a list of one hundred and twenty species growing on the exposed summit of Mt. Marcy; flowering plants, fifty; Club Mosses, three; Mosses, thirty-two; Liverworts, ten; Lichens, twenty-three; Fungi, two species; and adds: "The number of marsh plants growing at this

high altitude is remarkable. The necessary conditions . . . are afforded by the clouds and fogs that so frequently envelop the top of the mountain." It is highly gratifying that the State has so able and active a Botanist.—2. *Report on Botany, read before the Albany Institute, Feb.* 6, 1872; by Charles H. Peck, A.M.—A large part of this Report is devoted to an elucidation of the cause and cure of "black knot in cherry and plum trees. Mr. Peck concludes the disease to be of fungoid nature, having the dual form of *Cladosporium* and *Sphæria.* A highly interesting account of our new Arceuthobium is given, from which we quote: "We infer that the history of the plant is as follows: The fruit being mature in September, some bird or other small animal seeks it for food. The seeds being covered with a very viscid coat, adhere more or less to the beak of the bird or the mouth of the animal, and being a source of annoyance to it, they are rubbed off from time to time on the branch. Those that adhere through the winter to the young and tender shoot of the past season, germinate and form, during the first summer, the little hemispherical buds above mentioned. During their second season these increase in stature and form their flower buds. Probably early in the following season, the third in the life of the plant, the flowers expand, and by the middle of September the fruit is mature." We are sorry to see that Mr. Peck and Mr. Wood have been in haste to name this plant while Dr. Engelman, to whom the subject properly belongs, is engaged in unravelling the difficult relations of the species.—3. A beautiful colored plate of *Brevoortia Ida-Maia*, Wood, with the Article on the genus by Prof. Wood, from the Journal of the Academy of Natural Science, in which he defends the genus, in opposition to Dr. Gray's view, which transfers it to *Brodiæa.*

31. **Meeting of April 9th.**—Present, Messrs. Torrey, Barstow, Bower, C. Gerard, Henes, Hyatt, Leggett, LeRoy, McIntyre, Merriam, Payne, Ruger, Wilber, Wood—14. Mr. Hyatt exhibited *Erodium cicutarium* in bloom.

32. **Errata.**—Owing to the delays incident upon correcting proofs through the post-office, our March No. was kept back till the middle of April, yet, nevertheless, is not without flaws. In the § **New Hepaticæ**, No. 1, 3d par., for "*S. adustum*" read "*S. adustus;*" for "*Sarcoscyphus adustus*" read "*Gymnomitrium adustum;*" No. 2, 2d par., for "*S. densifolius*" read "*S. emarginatus;*" p. 14, No. 9, line 13, insert a hyphen before "oblongisve;" p. 16, No. 13, 3d par., put ":" instead of ";" after "Mont.," and in 3d line read "leaves always obtuse with the bead-like cellules in their centre;" p. 17, No. 15, 3d par., line 5, read "canaliculate;" p. 20, § **Urtica**, read "**U. gracilis;**" § **Boehmeria**, for "Jack" read "Jacq." There are a few other obvious typographical faults, and, in numbering the sections, two Nos. have been omitted, an error which we shall let pass, as it will lead to no inconvenience.

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

33.—The Torrey Botanical Club met Tuesday evening, April 30th. Present, eighteen members, viz., Messrs. Torrey, Wood, Allen, Leggett, Austin, Merriam, Bower, Gross, Hogg, Wilber, McIntyre, Ruger, C. Gerard, Parker, Paine, Hall and LeRoy. Visitors—three.

Mr. Hogg brought specimens of *Forsythia suspensa*, *Corylopsis paniculata* and *spicata*, *Stachyurus praecox*, *Parrya Siberica*, and two species of *Orchidaceæ*.

Mr. Austin brought, and distributed specimens of *Danthonia compressa*. *Danthonia Alleni* was shown by Dr. Allen. Both are described in the Bulletin.

Icones Illustratrae Indiae Orientalis, 6 volumes, by R. Wright, received in the College Herb. Library. P. V. LeRoy, Sec.

34. **Helonias.**—On the 3rd of May, Messrs. J. H. Redfield and C. F. Parker, Dr. Hassler, two Messrs. Tryon and myself made an excursion from Philadelphia into the edge of the Pines, chiefly in search of *Helonias bullata*, L. We were quite successful, finding the plant in all stages of the flowering process, from the imperfect bud to the turning green of the perianth. The plant is a shy-blooming thing, only a few out of many sending up a scape, and those few being very far between, except where two or three scapes grow from the same clump. The favorite situation for flowering seemed to be just on the edge of a swift stream, or in rich moist earth supported by some root or log that either crossed the stream or lay between two holes filled with water. One plant I found in flower close beside and touching *Orontium aquaticum*, also in bloom and growing in the water. The easiest way to find the flowers was to make one's way in the middle of the stream by means of logs in the water, or clinging to the branches above, now and then getting deep in the water or mud; and all the while struggling through a fearful tangle of underbrush, shrubbery and prickly stuff, which quite hid the sun and limited the view to a rod or two. The denser the thicket, the more freely the plant bloomed; but, still, hunting for the flowers reminded me of the hunt for *Aplectrum hyemale* in a locality where that plant is abundant. Nor was the difficulty at all ended with the finding of the plant, for the scapes are hollow, very thin and brittle, and filled with water; and, after the roots were apparently quite loosened from the earth, the least shock or jerk in lifting the plant up, would cause the scape to snap off, and spoil the beauty of the specimen. Then, after getting up the plant, it was very difficult to get out of the thicket without spoiling the flowers or breaking the scape to pieces against the brush, or by the shock of a jump or fall. Altogether, we came to the conclusion that *Helonias bullata* is a very hard plant to collect in flower. Besides the locality of last year, we found another locality new to us, but probably the same that Dr. Leidy discovered some years ago. Unfortunately, however, the plant must perish there before another season, as the thicket is just cut off and the clearing of the ground commenced. This year, though, the plants grew and flowered finely, and were much farther advanced than those first mentioned. Here, also, we

found a clump with *six* scapes, each scape two feet eight inches high, and the flower heads a trifle over two inches long. This clump I dug up, and by careful supporting and wrapping carried safely, without any breaking, to Philadelphia, where we hope it will thrive. Much beauty is added to the purplish rose flowers by the bright, blue color of the exserted stamens. The leaves, at time of flowering, are not more than one fifth the size they afterwards attain; and the perianth seems regularly to turn to a brownish-red before becoming green.

Among other things in flower we found *Sassafras*, *Spice-bush*, *Amelanchier*, *Euphorbia Ipecacuanhae*, several *Vaccinia*, *Gaylussacia resinosa*, *Cypripedium acaule*, *Viola pedata*, *V. lanceolata*, *V. sagittata*, *V. cucullata*, *Sisymbrium Thaliana*, *Draba vera*—the largest specimens I ever saw, scapes often seven and eight inches long. A very little *Pyxidanthera* still remained in flower; *Leiophyllum* was not yet out. A large area of *Sarracenia* and of *Nymphaea* (the small form) seemed to have suffered unusual blight, and nearly all the plants were dead where all last year were strong and vigorous.

We found a large bunch of *Phoradendron flavescens* growing on a branch of a staminate tree of *Acer rubrum*. The tree was about two feet in diameter at base—I could not clasp around it with both arms; and the bunch of mistletoe was about 40 feet high up, on a limb of about the thickness of a man's arm, and was greater in the diameter than the trunk of the tree at the base. We had no time or means to collect the specimen.

I also practically demonstrated the utility of "Wood's press" for such excursions. I put my specimens as collected at once into a press of that kind, and changed the papers immediately on arriving at Philadelphia, but had no chance to change again till the 10th inst., when I found the papers much drier than I expected, and the specimens doing well. I. H. H.

Pine street, New York, May 14th, 1872.

35. **Willows.**—I send you a few observations on the Willows of this locality, without any hope of adding to what is known by specialists. The location is on the Connecticut river, about 125 miles from its mouth, latitude 42° 50′ N. The river, within a distance of a few miles, receives several lesser streams flowing down from among the hills. The rocks are slate and granite.

I find here of native willows:—1. *Salix rostrata*, Rich, (*livida*, Wahl.) This is a tree-like shrub, growing in pastures and on the borders of woods, not apparently affecting water or wet places, nor have I observed it to be variable.

2. *Salix humilis*, Marshall. This is a shrub, and our earliest species. It does not seek water or seclusion, but takes to roadsides, fences, and neglected places. It is extremely variable in general appearance.

3. *Salix sericea*, Marshall. A shrub with silky ovaries and densely silky under-surfaces to the leaves; drying black. Found on low sandy banks of brooks.

4. *Salix lucida*, Muhl. This is a small tree with glossy foliage, which is found in similar situations with the *S. sericea.*

5. *Salix nigra*, Marshall. This is a well marked tree with black bark and yellow branches. I have not observed that it is variable. Indeed I have seen no young trees, but a number of old and picturesque ones over-hanging streams or shading watering-troughs on old farms, doubtless planted there.

6. *Salix cordata*, Muhl. A shrub growing in sandy flats subject to inundation. This is the most variable plant in its foliage, I think, that I have ever met with. I should find it impossible to fix upon any definite characteristics of leaf or stipule. In the summer or fall it is difficult to believe that these Protean forms do not embrace several species, but the catkins reduce them to unity in the spring.

Of the species of Salix which are called *adventive*, we have two :—

7. *Salix alba*, L. A fine tree growing by the roadside and near, but not directly upon, the banks of streams.

8. *Salix purpurea*, L. This shrub I found in a hollow place in the middle of an island in the Connecticut river. These were staminate plants, but they seemed to be thriving and extending. It must have been introduced there in some accidental way.

There ought to be and probably are several more of our native willows in this locality, but I have not discovered them.

I find the species of willows easier to distinguish at a distance of thirty to fifty rods than by a closer inspection. Several of the above have quite a marked character at a considerable distance, which seems to vanish on a nearer approach.

Ann E. Brown, Brattleboro, Vt.

36. Publications.—1. *The Lens, a Quarterly Journal of Microscopy and the Allied Natural Sciences; No. 2. April*, 1872 ; *Chicago.*—Mr. Babcock's Flora of Chicago is continued from Saxifragaceæ to Campanulaceæ. It is interesting to notice how many of the plants most abundant with us are rare or wanting. *Leucanthemum vulgare*, L., is even "cultivated in a garden." To students of cryptogamic botany this publication must prove of great value.—2. *Mann's Catalogue, second edition, revised and corrected.* B. Pickman Mann, Cambridge, Mass. The preface contains the new species not yet included in Gray's Manual, such as, *Arceuthobium minutum*, Engelm. *Danthonia compressa*, Aust.—3. In the *Naturalist* for May, Dr. Gray calls attention to a question raised by Babington as to Anacharis. "It may be that we have two water weeds . . . one diœcious, the other hermaphrodite. It is to be hoped that our botanists will examine the plants they meet, and preserve specimens of any different kinds or sexes of flowers they may detect."

37. Mann's Duplicates.—Mrs. Mary Mann, 19 Follen street, Cambridge, Mass., offers for sale foreign and native sets of these duplicates. Collectors would do well to send for a circular.

38. Orchids.—**Pogonia verticillata**, Nutt., and **Cypripedium parviflorum**, Salisb.; in bloom May 19th, between Tennafly and the Hudson.

G. I. C.

CARYA, Nutt.—**C. alba**, Nutt. ; common ; N. Y. ; Central Park, *R. & P.*—**C. microcarpa**, Nutt.; Closter, *Austin;* Glen Cove, *Coles;* Central Park, *R. & P.*—**C. sulcata**, Nutt. ; Central Park, *R. & P.*—**C. tomentosa**, Nutt. ; common; N. Y.; Central Park, *R. & P.*—**C. porcina**, Nutt. ; Closter, *Austin ;* Yonkers, *Pooley ;* Chatham, N. J., *W. H. L. ;* not reported from New York Island or Long Island.—**C. amara**, Nutt. ; common ; N. Y. ; Central Park, *R. & P.*

CUPULIFERÆ.

QUERCUS, L.—**Q. alba**, L. ; common ; New York ; Central Park, *R. & P.*—**Q. obtusiloba**, Mchx. ; common on Staten Island, Long Island, and south of the Raritan ; New York, 1862, *Austin;* Central Park, *R. & P. ;* Staten Island on hills, New Jersey in sandy soil, *Allen.*—**Q. macrocarpa**, Mchx. ; Orange Co., rare, *Austin.*—**Q. bicolor**, Willd.; Staten Island and New Jersey ; Central Park, *R. & P. ;* not reported from other districts, though probably found on Long Island and in Westchester Co.; vide Mr. Austin's observations, § 23.—**Q. Prinus**, L.; Central Park, *R. & P.;* South Jersey, *Austin;* var. **monticola**, Mchx.; N. Y.; Central Park, *R. & P.* ; Snake Hill, *Allen ;* Closter, *Austin ;* Glen Cove, *Coles;* not uncommon ; var. **acuminata**, Mchx. ; *LeRoy* ; Keyport, *Lockwood ;* Central Park, *R. & P.*—**Q. prinoides**, Willd. ; barrens, Long Island and New Jersey ; Closter, *Austin.*—**Q. Phellos**, L. ; Suffolk Co., L. I., *State Flora ;* Keyport, *Lockwood ;* near Long Branch.—**Q. nigra**, L. ; Long Island and New Jersey south of the Raritan ; Central Park, *R. & P.* ; **Q. heterophylla**, Mchx. ; South Jersey, *Austin ;* [extra-limital ?]—**Q. ilicifolia**, Wang. ; Closter, *Austin ;* barrens of Long Island and New Jersey.—**Q. falcata**, Mchx. ; common in New Jersey, *Torr. Cat. ;* Keyport, *Lockwood ;* South Jersey, *Austin.*—**Q. coccinea**, Wang. ; common ; Central Park, *R. & P. ;* var. **tinctoria** ; common ; especially near Jamaica, L. I., *Allen.*—**Q. rubra**, L. ; common ; N. Y. ; Central Park, *R. & P.*—**Q. palustris**, Du Roi ; common ; Bloomingdale, *Torr. Cat. ;* Central Park, *R. & P.*

CASTANEA, Tourn.—**C. vesca**, L. ; var. **Americana**, Mchx. ; very common ; N. Y. ; Central Park, *R. & P.*—**C. pumila**, Mchx. ; there has been no confirmation of the old statement that this plant is found on Long Island.

FAGUS, Tourn.—**F. ferruginea**, Ait. ; common ; N. Y. ; Central Park, *R. & P.*

CORYLUS, Tourn.—**C. Americana**, Walt. ; common ; Central Park, *R. & P.*—**C. rostrata**, Ait. ; Central Park, *R. & P.* ; Yonkers, *Pooley;* Rockland Co. ; Morris Co., N. J., *Austin ;* New Providence, &c., *W. H. L.*

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OSTRYA, Micheli.—**O. Virginica**, Willd. ; New York and New Jersey, *Torr. Cat.* ; Palisades ; Closter, *Austin ;* Yonkers, *Pooley ;* Glen Cove, *Coles ;* N. Y.; common on Long Island, *Merriam.*

CARPINUS, L.—**C. Americana**, Mchx. ; common ; N. Y. ; Central Park, *R. & P.*

MYRICACEÆ.

MYRICA, L.—**M. Gale**, L. ; Long Island, *Merriam.*—**M. cerifera**, L. ; common ; N. Y.

COMPTONIA, Solander.—**C. asplenifolia**, Ait. ; common ; Blomingdale, *Torr. Cat.*

BETULACEÆ.

BETULA, Tourn.—**B. lenta**, L. ; common.—**B. lutea**, Mchx. f. ; Bloomingdale, *Torr. Cat.*, but this locality is not mentioned in State Flora ; North Salem, Westchester Co., *S. B. Mead.*—**B. alba**, var. **populifolia**, Spach ; very common. *B. papyracea*, Ait. ; *Eddy in Torr. Cat.*, probably an error, as well as *B. glandulosa*, Mchx., on the authority of *Le Conte.*—**B. nigra**, L. ; Closter, *Austin* ; Bulls Ferry, *Le Roy* ; Paterson, *W. H. L.* ; Glen Cove, *Coles ;* common in New Jersey, *State Flora.*—**B. pumila**, L. ; Budd's Lake, *T. C. Porter.*

ALNUS, Tourn.—**A. incana**, Willd. ; Budd's Lake, Morris Co., N. J. ; *Austin ;* Scarsdale, Westchester Co., *Merriam.*—**A. serrulata**, Ait. ; common ; N. Y.

39. **Urticaceæ.**—By a typographical error the following were omitted in their proper place.

PARIETARIA, Tourn.—**P. Pennsylvanica**, Muhl.; Tappan, N. J., scarce, 1857, *Austin ;* Sandy Hook, not abundant, July 5th, 1870, *Ruger ;* Central Park, *R. & P.*

CANNABIS, Tourn.—**C. sativa**, L.; not uncommon; N. Y.; Jamaica; Canarsie, Communipaw, &c.

HUMULUS, L.—**H. Lupulus**, L.; Closter, common, *Austin ;* Hoboken Heights, *Ruger ;* New Lots, L. I., *Wilber ;* Central Park, *R. & P.;* Chatham, N. J., *W. H. L.*

40. At the regular meeting of the Torrey Botanical Club, held May 28th, the following members were present:—Torrey, Wilber, Merriam, Ruger, Bower, Day, Paine, Gerard, Parker, Henes, Hogg, Pollard, Leggett, Gross, Hall, Redfield, LeRoy.

The following is a list of the books received for the College Herbarium Library :—

Encyclopædia Methodique : Botanique, par Lamarck & Poiret, 20 vols. *Flora Sibirica*, Gmelin, 2 vols. *De Fructibus et Seminibus Plantarum*, Gærtner, 5 vols. *Plantes Nouvelles de Hort. J. M. Cels.*, par Ventenat. *Theophrasti Historia Plantarum*. *Civil and Natural History of Jamaica*, P. Browne. *Cornus*, by L'Heritier. *Novas Plantas*, Rottböll. *Flora Guajanensis*, Aublet, 4 vols. *Collectanea*,

W. C. Jacquin. *Eclogae Americanæ*, Wahl, 2 vols. *Symbolae Botanicae*, Wahl, 3 vols. *Historia delle Piante nei Lidi Veniz.*, Zanichelli. *Fasciculi Plantarum Americanarum*, Plumier. *Rariorum Stirpium, per Pannonicam, Austriam, et vic.*, C. Clusius, 1583. *Historia Commentariorum Stirpium*, L. Fuchsii, 1549. *Fungi Javanici*, Nees ab Esenbeck. *Pugillus Plantarum Javanicarum*, Nees ab Esenbeck. *Memoire des Ternstroemiacées ; Memoire des Onagraires ; Memoire des Nymphœacées ;* A. P. De Candolle. *Monographie Genre Pulmonaria*, B. Du Mortier. *Metamorphose der Pflanzen*, J. W. Von Goethe. *Monographie der Riccieen*, J. B. W. Lindenberg. *Plantarum Minus Cognitarum Centuriæ*, J. C. Buxbaum, 2 vols. *Synopsis Filicum*, Swartz. *Flora Indiæ Occidentalis*, Swartz, 3 vols. *Flora Lapponica*, C. Linné. *Synopsis Plantarum*, D. Dietrich. *Flora Rossica*, P. S. Pallas.

P. V. LeRoy, Sec.

41. **Notes by Mr. Ruger.**—In a court-yard leading from the Wall street ferry, Brooklyn side, **Galeopsis tetrahit**, L., was found by Mr. Merriam. This seems to have been forgotten by him. I have a specimen from there.—It may not be uninteresting to state that *Briza maxima*, L., has escaped from the gardens in Springfield, Mass., near the R. R. station, where I saw it last summer.—**Stellaria Holostea**, L., has grown on Train's Meadow Road for several years.—**Chenopodium glaucum**, L., grows in Newark avenue, Hudson City, N. J.—**Hydrophyllum Virginicum**, L., has not been heretofore reported from Long Island. It grows at St. Ronan's Well, and elsewhere on the north side.

42. **Darlingtonia.**—The *Gardeners' Monthly*, for June, claims for Mr. Taplin, South Amboy, the credit of being the first to bring this plant into bloom on this side of the continent. Dr. Thurber had it flower early in April, 1870, as reported in the Bulletin for that month. Mr. Bower also had it in flower, a year or more ago ; and, if we rightly understood Dr. Torrey, a lady, to whom he gave some of the roots about the same time, was very successful. We are the more surprised at this oversight on the part of the editor, as the flowering of these plants gave occasion to Dr. Torrey's testimony to the remarkable accuracy of Mr. Charles Sprague's botanical drawing (vid. Bulletin, April, 1871). De Candolle had doubted whether Sprague had possibly made a mistake, or, as seemed more likely, Nature had deviated. Dr. Torrey showed that Sprague and Nature were all right. It was M. De Candolle, excellent botanist though he is, who had erred.

43. **Hall's Oregon Plants.**—The Proceedings of the American Academy of Arts and Sciences for February, 1872 (issued in May), contain an enumeration, by Prof. Gray, of a collection of plants made by Mr. Elihu Hall, in Oregon, in the summer of 1871. The collection numbers 700 species. We are so accustomed, in collections made upon the Pacific Coast, to find large accessions to our North American Flora, that one in looking over this enumeration is struck with the fewness of new species. Many little-known plants have been added by this collection to our herbaria, and the synonymy of

others rectified. Dr. Gray, as usual, takes advantage of this publication to put on record some new species by other collectors and to revise several genera. One of the most interesting of Mr. Hall's discoveries is a new species of *Lophoclaena*, a grass of singular structure. Only one species, *L. Californica*, has heretofore been known; the new one is appropriately called *L. refracta*. G. T.

44. **Marsilia.**—An esteemed correspondent suggests that "the notices about the two Marsilias (the old European one from an entirely unlooked-for southern locality—Texas—-and a new one with an impossible fruit from Oregon) had better be referred back to their authors for further investigation." Discretion on the part of the editor is due as well to his correspondents as to his readers, and we take on ourselves, with humility, this censure for over-haste in publication.

45. **The Discoverer of Arceuthobium.**—We notice in the *American Journal* for June, that Dr. Gray, misled by us in our first notice, mistakes the title of this lady. It should be not Miss, but Mrs. L. A. Millington.

46. **Catalogue of the Plants in Central Park.**—This catalogue was made by men of botanical repute, but not intimately acquainted with our flora. We have already had occasion to notice one error; another has been lately brought before us. The *Asclepias parviflora*, Pursh, Mr. Pollard shows from the specimen to be an *Apocynum*. We hope Mr. P. will go over the whole collection, and verify it. We doubt, now, the *Carya sulcata*, Nutt., reported in our last number.

47. **A Hint on the Examination of Plants.**—The inquiry on page 48 of the last volume of the BULLETIN (Dec., 1871) induces me to mention the following method for making sections of small seeds in order to examine the embryo, or cross sections of leaves, anthers, small twigs, etc., in order to examine their structure. I refer to the method of *embedding*, which is by no means new, but may be novel to some of the readers of the BULLETIN.

The necessary materials for the process may be found in almost every house, and consist of a teaspoon and a portion of a spermaceti candle. Break off pieces of the candle and melt them in the spoon over gas or a spirit lamp. When the spermaceti is melted, allow the spoon and its contents to cool, until the latter begin to congeal; then embed in the congealing mass the seeds or whatever else it is wished to examine, and set the whole aside till cold. Finally, by passing the spoon a second time once or twice over the flame, the cake which it contains may be removed, and with a sharp razor thin sections may be made of the mass and its contents for examination under the microscope. In this manner better sections can be made than by holding the object between two pieces of cork.

The above is the simplest way. A more elegant mode is to employ a mixture of white wax and olive oil, about half and half (but the proportions may be varied according to the desired degree of firmness), melt them in a small cup over a Bunsen's burner, and pour the fluid into a little mould, made by turning up the edges of a common visiting card. F. J. B.

VIENNA, May, 1872.

48. **Helonias bullata.**—The note in the May BULLETIN, by I. H. H., upon the sparse flowering of *Helonias bullata* records a different experience from that of others. Last fall I received a number of the plants from a lady who lives near the Pine Barrens. She wrote: "The most marvellous sight I ever beheld was two or three acres of these plants in the height of their glory," which would indicate that your correspondent had fallen upon an unfavorable locality. Some twenty or thirty of the plants sent by her I placed in a cold frame, where they passed the winter under a slight covering of leaves. This spring they bloomed freely. After reading the remarks of I. H. H., I inspected the plants, and found that quite half of them had flower-stalks remaining, and, as a number had been cut for drying and for showing to others, I am safe in saying that more than half of the plants, large and small, bloomed. It may be the case with Helonias as with some other marsh plants, that it does better in dry ground than its native locality, or it may be that so marked a change as that, from the swamp to garden soil, threw plants into flower that would not have bloomed if left at home. At any rate, here are the facts. G. T.

49. **New Localities.**—Last season I found **Phlox pilosa** in abundance near Passaic, N. J., and also two specimens of **Vaccaria vulgaris**. **Trollius laxus** occurs in abundance in this vicinity, and I learn that A. S. Fuller, of Ridgewood, N. J., found a single specimen of **Rhodora Canadensis**. G. C. WOOLSON, 245 Broadway.

50. **Strangers.**—I have lately found growing plentifully and seemingly as well established as any native plant in their vicinity: **Hieracium murorum**, L.; **Veronica chamaedrys**, L.; **Ajuga reptans**, L.

They grow near each other, and have all probably sprung from English seeds scattered within the past few years. They are thriving among bushes and grass, like native plants, in an unimproved portion of the Prospect Park grounds. J. S. M.

51. **Note.**—On an excursion to Staten Island a couple of weeks ago, in quest of *Clematis ochroleuca*, I found right in the thicket, where Clematis grows, a clump of **Amorpha fruticosa**, L.; Var. **Lewisii** It had last year's fruit still remaining. I. H. H.

ERRATA.—p. 26, l. 13, for "Draba vera," read "Draba verna;" p. 28, l. 20, for "Le Roy," read "*Le Roy*."

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52. **The Flower of Yucca and its Fertilization.**—The flowers of all the species are more or less pendulous, open towards evening, and remain wide open through the night and half close in the morning, continuing in that condition until one or two days afterwards, when they drop off, or, if fertilized, wither and become erect. The sagittate anthers open a little before the flowers do, curve backward, and contract to about one-fourth their former size, and thus expel the heavy, somewhat gelatinous pollen-grains, which remain in different little lumps within the flowers. What we usually call the stigma is the style, or rather, the three styles; these together form the stigmatic tube, their edges conniving and their inner sides, the inner coating of the tube, exhibiting the stigmatic surface. This tube is directly connected with the ovarian cells. The pollen, introduced into the tube, begins to develop and to enter upon its functions. But, without artificial aid, it never gets into it. Nocturnal insects are the agents—in our gardens, at least, a white moth of the genus Tortrix. If, about sunset, when the flower is fully open, we take up the pollen-lumps from the flower, and, with a camel-hair brush, well introduce them into the stigmatic tube, we may supply the action of insects wanting in Northern or European gardens, far away from the native home of the Yuccas, and succeed in producing fruit and seed, which thus far are almost unknown in cultivation.

St. Louis, June, 1872. Dr. George Engelmann.

53. **Botrychium matricariæfolium**, A. Braun.—I send you a couple of specimens of this fern, from a locality in the neighborhood of Utica which I found last summer.

I sent specimens to Prof. Eaton, who pronounced it *B. matricariæfolium*, and stated that he had received it from Lake Superior, and from Susquehannah Co., Pa. He also stated that almost the same thing was found in this vicinity several years ago, by Mr. Paine, but that the specimen sent him by Mr. Paine was so imperfect that he passed it over as a form of *B. lanceolatum.*

I have not conferred with Paine about it; but, as he says nothing of it in his catalogue, it seems fair to conclude that he did not know of this locality.

It grows on the sides of a shady ravine some four miles from the city. I found growing side by side with it; *B. Virginicum*, Swartz; *B. Virginicum*, var. *gracile*, Pursh; *B. lunarioides*, Swartz; *B. lanceolatum*, Angstroem.

The specimens I send were gathered June 29, 1872. The locality is quite limited in extent, but the plant seems abundant. Why has not Prof. Eaton described this species in the Manual? It is the same as Wood's *B. neglectum*, of course.

I found quite a curiosity at the Mud Lake Swamp (Paine's Catalogue) a few days ago—several specimens of *Cypripedium spectabile*, Swartz, with the labellum double, the two being quite distinct throughout, and about two-thirds the size of the ordinary flower, and all the other parts of the flower single. Edwin Hunt.

Utica, N. Y., July 7, 1872.

54. **Bees puncturing Flowers.**—This spring we received from Lewis

Co., N. Y., a package of *Dicentra cucullaria*, DC., the spurs of which had been perforated and cut by humble-bees. We take the liberty of making extracts from the letter of the lady who sent them. "C. went to the woods, and spent several hours watching the bees. The woods were full of Dicentras this spring. He could not find a spike of any species on which there were not one or more punctured flowers. He said the bee lighted on the lowest flower, cut a small hole in the spur with his mandibles, inserted his proboscis, took a sip of the honey, then proceeded to the second flower, where the same operation was performed ; then to a third, when he captured him. [The bee was sent us.] He saw several humble-bees performing this labor, and many honey-bees sucking the honey; but in no instance did he see the honey-bee make the incision, and these were the only insects which visited the flowers during his stay. My *Dicentra spectabilis* and *D. eximia* are now in full bloom. The flowers are greatly disfigured by these punctures. Yesterday I observed a bee for a long time while taking his dinner. The spurs of three or four of the lowest flowers on the long racemes were already punctured. He would fly to a flower, place his feet on each side of the spur, either to press up the honey or to 'hold on' better, insert his tongue for a few seconds, and then fly to the next. Every insertion of his tongue enlarged the orifice ; but in no case did he make a fresh incision until the supply of nectar was apparently exhausted. Then, with his strong mandibles, he would nip a hole in a perfect flower as quickly as you could with a pair of scissors. They appeared to know the exact moment when the flower was full-grown and the honey secreted." . . . "The insects, as far as I can discover, do not visit the Adlumia and Fumitory."

55. **Fertilization of Asclepias.**—I notice in the July No. of the *American Agriculturist*, in an article on this subject, the statement that "the point where the filaments or strings which connect them [the pollen-masses] join is very sticky." In the *American Naturalist*, Vol. I., pp. 69, 71, the gland is called "viscid" and "adhesive." In Vol. II., p. 665, of the same work, the pollen is said to adhere "by a glutinous substance." In Vol. III., p. 109, J. Kirkpatrick, who seems to have looked carefully into the matter, attributes the adhesion to the fact that "a hair or claw [?] entering the cleft becomes fast." That this is the case, my own observations, as given on p. 388 of the same volume, confirm. I have never noticed any adhesiveness on the outside of the gland. If a very fine hair is drawn through the cleft, it is caught and lifts out the pollen ; but if the hair be too coarse to enter the cleft, I have never found it to adhere to the outside. The fibres of cotton, or the fine long hairs on many plants—the Asclepias itself—are best for this experiment—none more so than the long, separate hairs on the petiole of *Ambrosia artemisiæfolia*. I have never been able to determine how the hair is held in the gland, whether by some viscid substance contained in it, or by mechanical pressure, and would gladly learn. There is one fact connected with this subject which I do not remember to have seen noticed, and which makes the analogy between the Asclepiads and

Orchids still closer. When the pollinia are drawn out of their pockets they lie in the same plane, but in a short time twist about so as to be in parallel planes. In this position, what may be called the knees of the mass are turned to the side opposite to the groove, and present to the cleft of the stigma, when the insect alights, what was before the outer edges of the mass. When moistened with warm water, the pollinia resume their original position. This last experiment I made with the pollen of *A. Cornuti*, Decaisne.

W. H. L.

56. **New Publications.**--1. *Botany for Young People.* PART II. *How Plants Behave: How they Move, Climb, Employ Insects to Work for them, etc.* By Asa Gray. New York and Chicago: Ivison, Blakeman, Taylor & Co.

As the title, given in full, indicates, this little work brings together a class of facts constituting a new and most important chapter in Botany. It was time for the separate observations to be combined and the results introduced more directly to the student, and we are rejoiced to learn that Dr. Gray proposes a fuller statement of them. The book is attractive in form, and we hope may lure the young to our favorite study. To more mature minds, imbued with a love of Nature, it cannot fail to prove of great interest. We find a little obscure the brevity of the account of the insect fertilization of Iris, and venture to question the dictum that such plants as *Silene* and *Robinia viscosa* capture insects by accident.

2. *The Bee-Keeper's Magazine: an Illustrated Monthly.* H. A. King & Co., 14 Murray street, New York.

57. **Agave Americana, L.**—A fine specimen of the so-called Century-plant has been on exhibition in this city during the last month. The great heat seems to have hastened its blooming, so that we fear it may be too late for our readers to profit by this notice.

58. **Salices.**—We have omitted the continuation of the Catalogue this month, in order to make a final appeal for help with these Willows. We do not suppose that any one is free from doubts on this subject; but whoever has studied it at all must have determined some of the species described in Gray's Manual, or at least must have some specimens from our vicinity. We want every ray of light. In particular, we have no information about *S. humilis*, Marshall; *S. purpurea*, L.; *S. viminalis*, L.; *S. cordata*, Muhl.; the varieties of *S. fragilis* and *S. alba*, L.; *S. longifolia*, Muhl. Doubtless some or all of these species are to be found hereabouts. No genus of plants is more puzzling, and very good service may be rendered to science in this direction.

59. **Pinus Elliottii, Engelm.**—Mr. H. W. Ravenel has kindly sent us additional specimens (which we have placed in Dr. Torrey's herbarium), and writes: "You will observe the early recurving of the young cones, which seems to be characteristic of the species. Dr. Mellichamp, of Bluffton, S. C., near the sea-coast, from whom I received them, says in his letter of April 30th—'Some weeks ago the young cones were standing off like the arms of a cross, the whole

outline of the tree presenting these innumerable little crosses against the sky, but now they are all turned downwards.' It thus appears that in this species the young cones recurve a few weeks after flowering. In *P. glabra*, Walt., this takes place during the first summer's growth, as I have specimens collected in November, with the spring fruit recurved. In some species they remain erect or at right angles, and in others recurve at the beginning of growth of the second season. This peculiarity is worthy of more attention, as it may furnish important specific characters.

"I enclose also a sprig of *P. glabra*, exhibiting the true leaves very finely. You will observe that, while the true leaves are unusually well developed, the phylloid shoots are mostly wanting in their axils, and that the leaves are finely serrulate, while the phylloids are smooth and have entire margins.

"I also send some fruit of the very rare and curious *Carya myristicæformis*, Mch., found in swamps in the seaboard districts of this State."

60. **Hottonia inflata**, Ell.—I have recently found this rather rare plant in such quantities, and so near New York, as perhaps to render the locality worthy of record. It grows by the roadside, about a mile east of Woodridge Station, on the Hackensack branch of the Erie R. R. The ditch is completely covered with it for several rods in length. Near it is also found **Glyceria acutiflora**, Torr., in abundance.

Bromus sterilis, L., is very abundant about cultivated grounds near Passaic, N. J., and in timber lands **Asclepias quadrifolia**, Jacq., together with **A. phytolaccoides**, Pursh. **Chamælirium luteum**, Gray, grows between Hackensack and Lodi, N. J., though not plentiful.

I found this spring, on Todt Hill, Staten Island, a white variety of **Silene Pennsylvanica**, Mchx. All the plants I found had white flowers. G. C. W.

245, Broadway.

61. **Broussonetia.**—A few days since, walking down through the Park, between 10 and 11 o'clock A. M., I saw numbers of Broussonetia trees, in full flower, very cloudy with exposive puffs of pollen, as noticed by Prof. Martin in a last year's number of the BULLETIN. I picked up a catkin, just blown off by the wind, and some puffs appeared as I held it in my hand. I. H. H.

June 3d.

62. **New Localities.**—**Mentha aquatica**, L., var. **crispa**, Benth., at Tarrytown. **Geranium Robertianum**, L., in the cedar groves on Rockaway Beach, *W. H. L.* **Ægopodium podagraria**, L., waste places, Prospect Park, *Merriam*.

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63. **Note from Dr. Engelmann.**—Your July BULLETIN is just received. Did I write so indistinctly that you could have made out the *glutinous* pollen *gelatinous*? Who ever has seen gelatinous pollen?

Of minor importance, is that you made me refer the moth in question to the *Genus Tortrix.* I undoubtedly said "*allied* to Tortrix. Our State Entomologist, Prof. Riley, has examined the moth, and found it to belong to Tineidæ, and to constitute a new and distinct genus. The same is found wherever capsule-bearing Yuccas grow. The larva lives on the growing seeds, fertilized by the exertions of its mother, bores through the yet green rind of the full grown fruit, and enters the ground. I have received it now from South Carolina, whence Dr. John K. Mellichamp, the discoverer of Pinus Elliotti, sends it; and from Texas, where Mr. Elihu Hall has found it. Dr. Mellichamp has won laurels in the zealous investigation of the flora of his region, and has furnished me, in the most amiable manner, valuable material and notes for my botanical studies, especially as far as regards Coniferæ and Yuccas.

Scarcely any Yucca capsule is seen without one or more holes in it made by the escaping larvæ, and part and sometimes all of the seeds are sacrificed to obtain the fertilization of the ovules.

Your notice of the Agave has made me think of your letter. I had mislaid and forgotten it. I should like to obtain, if yet time, a bunch of flowers, fresh, sent by mail in a box.

You will observe a fact, interesting in many points, in the flowers and fertilization of Agave. When the flowers open and the anthers shed their pollen, the style is yet quite short, often hidden within the flowers, and the stigma closed. Only the following day, after the anthers are effete, or have even fallen off, the style lengthens and usually attains the height of the filaments, when the three lobes of the stigma expand, ready to receive the pollen of the younger flowers opening now above them. Agave is, therefore, proterandrous; descriptions mentioning the length of the style must be cautiously considered; and figures which represent style and stamen equally developed are necessarily erroneous.

I wish I could obtain a bunch of flowers, and regret much, not having written at once. Capsules and seeds will also be acceptable.

ST. LOUIS, July 29th, 1872.

[When we received Dr. E.'s letter it was too late for the Agave. We publish his request in hopes that some one else may be able to respond.—EDS.]

64. **Yucca.**—In Dr. George Engelmann's notes on the fertilization of the *Yuccas*, in July BULLETIN, he says: "The fruit and seed are *rare;* indeed, almost unknown in cultivation in Northern gardens;" and also, "Without artificial aid, the pollen never reaches the inner or stigmatic surface of the tube, &c."

In my own garden, the *Y. filamentosa,* Gray, blooms and matures its seed annually. I have never been able to discover the intervention of any insect to assist fertilization, nor have I ever failed to secure the prompt germination of seed taken from any well-matured capsule.

J. W. B.

FLUSHING, L. I.

65. **Trees and Rain.**—The influence of trees upon rains and the general moisture of the atmosphere, which has been so much discussed of late, receives a strong illustration from the island of Santa Cruz, W. I.

A friend who spent the months of February, March and April last upon the island, informs me that, when he was there twenty years ago, the island was a garden of freshness, beauty and fertility. Woods covered the hills, trees were everywhere abundant, and rains were profuse and frequent. The memory of its loveliness called him there at the beginning of the present year, when, to his astonishment, he found about one-third of the island, which is about twenty-five miles long, an utter desert. The forests and trees generally had been cut away, rain-falls had ceased, and a process of desiccation beginning at one end of the land had advanced gradually and irresistibly upon the island, until for seven miles it is dried and desolate as the sea-shore. Houses and beautiful plantations have been abandoned, and the people watch the advance of desolation, unable to arrest it, but knowing, almost to a certainty, the time when their own habitations, their gardens and fresh fields, will become a part of the waste ; the whole island seems doomed to become a desert.

The inhabitants believe, and my friend confirms their opinion, that this sad result is due to the destruction of the trees upon the island some years ago. J. S. M.

66. **New Stations.**—**Polanisia graveolens**, Raf. ; **Lythrum Salicaria**, L. ; **Asclepias verticillata**, L., found abundant along the Hudson R. R. R., at Fort Montgomery Station, a few miles below Garrison's. **Liatris spicata**, Willd., between Fort Montgomery and Garrison's, about opposite Gov. Fish's residence. J. S. M.

July 31.

67. **Note from Prof. Thomas C. Porter.**—If Budd's Lake, Morris Co., N. J., is within the circuit embraced by your BULLETIN, and it may be, being less than fifty miles from New York, I can report as growing there, and can furnish specimens of, *Salix myrtilloides*, *S. candida* and *S. lucida*—also, *Betula pumila*. A number more of interesting plants occur there, and the point is well worth a visit from the members of your Club. It is very easy of access, and there is a good hotel on the border of the Lake. It lies only 2½ miles south of Stanhope Station on the Morris and Essex R.R. Lake Hopatcong, which is still further east, can boast of possessing, on the sandy margin of its largest island, the rare *Juncus subtilis*, Mchx. (*J. pelocarpus*, var. *subtilis* (?), Engelm.). I collected it there some years ago on the 25th of September, not in fruit.

EASTON, Pa.

68. **Silver-leaf.**—This name we found given in Greene Co., N. Y., to the common Balsam, *Impatiens fulva.* Some one had noticed that when the fresh leaves are immersed in water the underside reflects the light as from a surface of silver-foil. But many other leaves, those of Dogbane for example, exhibit the phenomenon in nearly equal perfection. The surface of these leaves is not wet by the

water, as may be seen by withdrawing them. The reflection, then, is from the surface of water next the leaf. The brilliancy of dew-drops is owing to a like cause. The experiment is a pleasing one. If our explanation is defective, we should be glad to have the deficiencies supplied.

69. **Hypericum Canadense**, L., var. **major**, Gray.—On wet hill-sides in the Town of Windham, Green Co., N. Y., grows a very marked form of this plant, the leaves being frequently 4½ lines in width. The typical form does not occur in that vicinity, though found near the Mountain House. *Carum Carui*, L., grows spontaneously along the roadside in East Windham.

70. **Publications received**.—1. *Grevillea*, No. 1, with a colored plate, gives much space to American Cryptogams ; to the publication here of most of them we have already referred. A new contribution is *Pezizæ Americanæ*, by M. C. Cooke and C. H. Peck.

2. *Archives of Science*, No. 5, McIndoe's Falls, Vt., contains the commencement of a catalogue of Vermont plants, *Ranunculaceæ* to *Fumariaceæ*. The most curious item, however, belongs to New Hampshire : *Clematis Viorna*, "found abundantly just across the Connecticut river from Brattleboro', on Wantasetiquet Mountain, on a sheltered southern slope, by C. C. Frost." Another article, *Botanical Notes*, by Prof. Ed. T. Nelson, of the Ohio Wesleyan University, on Mistletoe and Trillium, is of interest to botanists.

3. Circular of a *New Botanical Check List*. "It will include the Phænogamous and Acrogenous plants of that portion of North America . . . embraced in Gray's *Manual* and Canada." Address, A. H. CURTISS, Liberty, Bedford Co., Va.

4. The Article "*On the Cause of the Deterioration in some of our Native Grape-Vines*," by C. V. Riley, in the September No. of the *American Naturalist*, contains Dr. Engelmann's elaboration of the "*Grape-Vines of the Old United States*." In the August No. is a notice of a wild double-flowered state of *Saxifraga Virginiensis*, Mchx. We have a specimen gathered in Greenburgh, Westchester Co., N.Y., in 1858.

5. *Nature*, July 11, 1872 (No. 141, Vol. 6), contains the memorial of Lyell, Darwin, Bentham, and other eminent scientific men, to Mr. Gladstone, in reference to the disgraceful interference of a Mr. Ayrton with Dr. Joseph Hooker. This Ayrton happens to hold the office of First Commissioner of the Board of Works, and treats his official subordinate Dr. Hooker in a way that threatens to drive him from his most useful position. Mr. Ayrton, in his self-conceit, seems not to be aware that England would be in a sad state of decay if she had not many men better qualified for his office than he is, but if Dr. Hooker should be displaced, there could not be found another to fill the vacancy. "*Nature*" is constantly pressing the union of State and Science, but such experiences as that of Dr. Hooker in England and Mr. Parry in this country are not encouraging.

71. **Westchester County Plants.**—Dr. S. B. Mead, of Augusta, Hancock Co., Illinois, has sent us a list of plants which he gathered many years ago in Westchester Co., N. Y., and Greenwich, Ct. We select some of the most notable. **NORTH SALEM:** *Clematis verticillaris*, DC.; *Ranunculus abortivus*, L., var. *micranthus; Coptis trifolia*, Salisb.; *Dentaria diphylla*, L.; *Acer dasycarpum*, Ehrhart (Croton River); *Myriophyllum tenellum*, Bigelow; *Viburnum opulus*, L.; *Liatris scariosa*, Willd.; *Solidago rigida*, L.; *Hottonia inflata*, L.; *Castilleia coccinea*, Spreng.; *Dirca palustris*, L.; *Celtis occidentalis*, L.; *Abies nigra*, Poir.; *Arethusa bulbosa*, L.; *Liparis liliifolia*, Richard; *Aplectrum hyemale*, Nutt.; *Trillium erythrocarpum*, Michx. (Peach Pond); *Chamælirium luteum*, Gray; *Juncus pelocarpus*, E. Meyer; *Pontederia cordata*, L., var. *angustifolia* (Peach Pond); *Schollera graminea*, Willd. (Croton River); *Eleocharis quadrangulata*, R. Br. (East Long Pond). **PEEKSKILL:** *Polanisia graveolens*, Raf.; *Elatine Americana*, Arnott; *Tillæa simplex*, Nutt.; *Crantzia lineata*, Nutt.; *Limosella aquatica*, L., var. *tenuifolia*, Hoffm.; *Sagittaria pusilla*, Nutt. **GREENWICH:** *Reseda luteola*, L. (roadsides); *Tussilago Farfara*, L.; *Hottonia inflata*, L. (He found this plant before the year 1820); *Galeopsis tetrahit*, L.; *Hyoscyamus niger*, L.; *Quercus obtusiloba*, Mchx.; *Aplectrum hyemale*, Nutt. **RIDGEFIELD**, Ct.: Tamarack swamp, about 2 miles from N.E. corner of Town of North Salem: *Aralia hispida*, Mchx.; *Andromeda polifolia*, L.; *Kalmia glauca*, Ait.; *Nemopanthes Canadensis*, DC.; *Orontium aquaticum*, L.: *Xyris flexuosa*, Muhl., Chapm.; *Eriophorum alpinum*, L.

72. **Trip to Staten Island.**—Herborizing with a friend, early in July, we were struck with the frequency, near Tottenville, of **Diospyros Virginiana**, L. We saw some bushes of **Pinus inops**, Ait., almost stripped of their leaves by caterpillars. The most abundant growth of **Apocynum cannabinum**, L., that we have met with near the city, was just beyond Red Bank Light, along the shore, the nearest R.R. station being Pleasant Plains. **Tecoma radicans**, Juss., is perfectly at home here, spreading over the sand, and climbing the bushes, particularly a group of self-sown **Ailanthus glandulosus**, Desf., which was in a blaze with the showy trumpets. The shore in the same locality was covered with **Artemisia caudata**, Mchx., which has not before been reported from the Island. We picked up a pretty sound twig or root, into a minute crevice of whose bark some grass (*Calamagrostis arenaria*, probably) had inserted its fibrous root. The fibre had passed between the bark and wood, and had found its way out some inches away on the other side. The openings in both cases were so perfectly filled by the fibre of the grass root, that it seemed to have bored its way through the hard bark, which must have been one-sixteenth of an inch in thickness. My companion had often noticed similar appearances in the Northern woods.

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73. **Notes by Mr. Hall.**—It is well known that the name *Bugloss* comes from the Greek *βούγλωσσος*, and means "Ox-tongue;" but Dioscorides relates (I have not the work at hand, and cannot remember precisely the place) that the Greek name is only a translation of the Phenician "*Haleshon Eleph,*" a name the Carthaginians applied to an herb they used medicinally. The name, any Hebraist will immediately see, means "the tongue of ox," or as we would say, "the ox-tongue."

Some years since, I found in Sennet, Cayuga County, a number of exceedingly large specimens of *Phegopteris hexagonoptera*, Fée. On burning some broken pieces, after I had dried them, I noticed that instead of leaving an ordinary ash, each piece left a white globule of nearly pure carbonate of potash. I then took a whole frond and set one end on fire, holding the other, when a little white globbule of KO,CO_2 followed up the burning end, hissing and boiling and increasing as it went on, and attaining the size of a very large pin-head by the time the frond had burned up to my fingers; but no other ash appeared. I repeated the experiment several times with the same result, and have since tried specimens from other localities, and have often found that the fern would thus burn entirely up, with nothing solid left but a white globule of carbonate of potash. How pure the salt was I cannot say, as I only satisfied myself of its main character. I ought to mention that the soil in which the specimens first mentioned grew was mainly formed of decayed wood.

74. **The Willows of Amherst, Mass.**—All the common species are abundant, six or seven sometimes being in close proximity.

Salix discolor shows its catkins soon after the first of April, and is rapidly followed by *S. humilis*, *tristis* and *sericea*, these by *S. livida* and *cordata*, and still later by *S. lucida* and *nigra*. Several varieties of *S. fragilis* and *alba* are cultivated for hedges and other purposes. *S. myrtilloides* is found in adjoining towns, and *S. longifolia* on the Connecticut river farther north.

It is important that the place each species holds in Anderson's arrangement should be known, but it is sufficiently puzzling to assign each its place according to Gray's Manual, and the more so, as the term "species," in many cases, really means "group," and often a very comprehensive one.

1. *Salix discolor*, Muhl., as found here is reasonably constant as described, and the ordinary forms are readily recognized in flower. The mature leaves occasionally retain some pubescence beneath, and can hardly be told from the similar leaves of *S. humilis* except by their being serrate. Old bushes have often exceedingly small leaves.

2. *Salix humilis*, Marsh., seems to be a convenient name for all the protean forms occurring between undoubted *S. discolor* and *S. tristis*.

One form, with slender, dark twigs and thin leaves, growing in the shade, is very like *S. discolor.* A second, with vigorous, gray, downy shoots, numerous and thick leaves, very woolly beneath, and with large stipules, cannot be mistaken, while by the side of it is a third, with smooth yellow twigs, whose leaves alone determine it.

Still another form has narrow leaves, much like those of *S. tristis*, though thinner and less hoary, while the catkins are very small and globular, and might make a pretty good species.

3. *S. tristis*, Ait., is less common than the preceding, which is always found in close proximity. It grows in large, low clumps, with slender shoots often two or three feet in length, and has a less upright habit than any other. The ordinary form is readily detected, but the connection between these last two species is so close that the distinctions given seem to be more of degree than of kind.

4. *S. sericea*, Marshall, is plainly marked. Does its allied species *S. petiolaris*, Smith, occur in New England, and are they more than varieties of one typical form?

5. *S. cordata*, Muhl., is another polymorphous group. The broad, cordate leaves are more common on the thrifty shoots, and a beginner may as well forget that the name has any significance, as he gathers the narrow lanceolate leaves, often the only ones to be found. The fruit is the only constant quantity.

6. *S. livida*, Wahl., var. *occidentalis*, is usually true to its name, though the leaves vary greatly in hoariness, the prominent veins however remaining. Like *S. discolor*, when old or stunted, its very small leaves render it easy to confound the two.

7. *S. lucida*, Muhl., is widely distributed through the town, but occurs mostly in single bushes, and those nearly all staminate. The form with broad leaves, somewhat glutinous and drying dark, is the most common. The other, with lanceolate and thicker leaves, somewhat pubescent beneath, is less abundant. It is our most elegant willow.

8. *S. nigra*, Marsh., is common and without much variation.

9. *S. fragilis*, L. There are two and perhaps three varieties found in the hedge-rows.

10. *S. alba*, L., var. *vitellina* and var. *cœrulea* both occur, but as the staminate trees are not cultivated it is not easy to get complete herbarium specimens, or study any introduced willows to advantage. Perhaps some benevolent botanist will offer to supply this defect in our collections.

The *Manual* tells us *S. livida* has its anthers frequently transformed into imperfect ovaries. This is true also of *S. humilis*, *discolor*, and *cordata*. The "*cordata*" ovaries are quite perfect and make the bush look as if in full fruit. H. G. Jesup.

75. **Humming-bird.**—I was reminded the other day of the story told by Pliny, of the painter Zeuxis, who represented a bunch of grapes so naturally that the birds flew at the picture to eat the fruit. My friend, Mrs. P. W., told us that a gentleman, the Rev. Mr. P., was sitting on the piazza of her house with his feet encased in a pair of worked slippers, adorned with some highly-colored flowers, and that she saw a humming-bird repeatedly pick at the flowers, in the

vain attempt to find in them his accustomed nourishment. This curious fact seems to indicate that the attraction in such cases is not due to the odor of the flowers, but simply to their bright color; and that the Greek story is not so improbable after all. C. D. M.

76. **Actæa, L.**—I have been interested this summer in the examination of the Actæa—both red and white—of which I saw hundreds of fine plants. It is impossible to mistake the one species for the other, without regard to color of berries.

The red berries (*A. spicata*) have very delicate, long, green pedicels, $\frac{3}{4}'$. The berries are a half larger than the white, and the stalks *are hollow, and easily crushed* with the thumb and finger.

The long pedicels give to the head much of the ovoid shape mentioned in the books as opposed to the oblong heads of the white.

A. alba has berries small, $\frac{1}{3}'$, and generally white, though I found several red, but it was as easy to distinguish them from *A. spicata* as if they had been white. The pedicels are $\frac{1}{2}'$ long, and very thick and red, and, in contrast with the white berries, produce a very pretty effect. The *stalks are solid*, occasionally having a fine thread-like hollow at the centre, but are *never easily crushed* with the fingers. This distinction is very remarkable. I probably examined more than 100 stalks, and brought some with me showing this difference. I found it everywhere the same.

The small *red* berries on thick, short, red pedicels were as clearly the *A. alba* as the white ones; they had every characteristic but color, and that of a very different shade from the *A. spicata*.

This circumstance has made me doubt the observations on which is made the statement, "white berries sometimes occur on slender pedicels, and vice versa," for in my case, though "vice versa," they were not *A. spicata* in any sense. The white is generally of a more slender habit than the red, and taller, but I should find it difficult, if not impossible, to distinguish them except in fruit, and then it is impossible to confound them, and I make no doubt as to their being distinct and well-defined species. J. S. MERRIAM.

77. **White Partridge Berries.**—We found last week a good many *white* partridge-berries (*Mitchella repens*). We have never noticed them before, and would like to know whether they are common; if so, we are not close observers. They were growing with the red berries, but not on the same vines. They were larger than most of the red ones. We thought at first that they were unripe berries, but they cannot be, for there were quantities of green ones which did not look at all like these. We find no mention of them in Gray's Botanies.

CANAAN, CT., Sept. 11th. S. W. A.

78. **Aspidium Thelypteris, Swartz.**—Mrs. L. A. Millington finds this fern to be quite fragrant in drying. She writes:—"I think we shall have to call it a variety, as not all that I have examined have proved to be fragrant. The fertile fronds are somewhat less rigid, and the whole plant softer and lighter colored. I find that it has been known among country people as *Beaver-meadow fern*. Marshy

bits of meadow smell deliciously of it in autumn. Before I knew of its fragrance, I have looked them over and over for vernal grass. I discovered that it was a fern four years ago at New Pond, in Elizabethtown (Essex Co., N. Y.)."

Fungi.—Mrs. M. adds :—"The season has been very wet, and the woods swarm with fungi. The leaves on the forest trees were blighted by them so much that whole patches of hillside covered with deciduous trees looked as if fire had run through them. I saw fine trees with foliage turned yellow, owing to a fungus with brown, powdery spores, which grew under the smooth bark of the lesser branches. The Balsam Fir has a curious fungoid growth which is so like in effect to Arceuthobium that it is hard to tell them apart till you handle them. I have not found the Arceuthobium on the Balsam as yet."

79. Willows and Poplars.—We are indebted to the Rev. H. G. Jesup for a very fine suite of specimens of the Amherst willows. Our own collectors seem generally to have neglected these two genera, and our materials have consequently been very meagre.

80. Rhyncospora nitens, Gray.—This southern form has been detected at Long Pond, Wading River, L. I., by Messrs. Young and Miller.

SALICACEÆ.

Salix, Tourn.—**S. candida**, Willd.; found in all our districts; N. Y.—**S. tristis**, Ait.; Long Island ; Staten Island ; South Amboy.—**S. humilis**, Marshall ; Hunter's Point, *Allen* ; Harlem River, *W. H. L.*; Glen Cove, *Coles.*—**S. discolor**, Muhl.; everywhere common ; N. Y.—**S. sericea**, Marshall ; Westchester Co.; Bergen Point.—**S. petiolaris**, Smith ; reported from Westchester Co., and New Durham Swamp, but the specimens are not decisive.—**S. viminalis**, L.; cultivated in N. J.—**S. cordata**, Muhl.; rather common, particularly the narrow leaved forms.—**S. livida**, Wahl., var. **occidentalis**; rather common.—**S. lucida**, Muhl.; common.—**S. nigra**, Marsh ; N. Y., banks of Harlem River and Westchester Co., where is found the var. **falcata.**—**S. fragilis**, L.; N. Y. and Westchester Co.—**S. alba**, L.; Glen Cove, *Coles* ; var. **vitellina** ; common on and about New York Island.—**S. Babylonica**, Tourn.; common in cultivation.—**S. myrtilloides**, L.; Budd's Lake, N. J., *Porter*.

POPULUS, Tourn.—**P. tremuloides**, Mchx.; common ; N. Y.—**P. grandidentata**, Mchx.; common ; N. Y.—**P. heterophylla**, L.; not uncommon ; swamps, Bloomingdale, *Torr. Cat.*—**P. balsamifera**, L.; var. **candicans**; common in cultivation.—**P. nigra**, L.; was formerly reported (*Torr. Cat.*) on the Hackensack road near Hoboken. We have heard nothing of it of late.—**P. dilatata**, Ait.; still lingers on old grounds.—**P. alba**, L.; much cultivated.

CONIFERÆ.

PINUS, Tourn.—**P. rigida**, Miller; common.—**P. inops**, Ait.; Long Island, *LeRoy;* Staten Island, *LeRoy, Leggett;* New Jersey.—**P. mitis**, Mchx.; New Jersey, *State Flora.*—**P. resinosa**, Ait.; Inwood, N. Y. Island, *LeRoy.*—**P. Strobus**, L.; common; N. Y.

ABIES, Tourn.—**A. nigra**, Poir.; "As far south as New York," *State Flora;* New Durham Swamp, *Torr. Cat.;* Secaucus Swamp, *W. H. L.;* Palisades, very rare, Orange Co., *Austin.*—**A. alba**, Mchx.; Orange Co., *Austin.*—**A. Canadensis**, Mchx.; not uncommon; N. Y.

LARIX, Tourn.—**L. Americana**, Mchx.; New Durham Swamp; Passaic River; Closter, *Austin;* Westchester Co., Yonkers, *Pooley;* Harlem River, *Ruger.*

THUJA, Tourn.—**T. occidentalis**, L.; "Rocky banks of the Hudson, New York and New Jersey," *Torr. Cat.;* Spuyten Duyvel, N. Y.; Closter, scarce, *Austin;* Glen Cove, *Coles;* Yonkers, *Pooley.*

CUPRESSUS, Tourn.—**C. thyoides**, L.; Swamps, Long Island, *State Flora;* New Durham, Secaucus, &c., N. J.; Westchester Co., *Pooley;* Peach Pond, Putnam Co., *Dr. Mead in State Flora.*

JUNIPERUS, L.—**J. communis**, L.; Fishkill, *Torr. Cat.*; Glen Cove, *Coles;* Wading River, *Miller;* Closter, common, *Austin;* these stations have commonly the prostrate form (var. depressa, *Torr. Cat.*) the upright form is common about Dickerson, Morris Co., N. J., and about the Water-gap, Pa., *Austin.*—**J. Virginiana**, L.; common; N. Y.

TAXUS, Tourn.—**T. baccata**, L.; var. **Canadensis**; Manhattanville, *Menard in State Flora;* Palisades, common, *Austin.*

ARACEÆ.

ARISÆMA, Martius.—**A. triphyllum**, Torr.; very common in rich woods.—**A. dracontium**, Schott; LeRoy; Orange Co., *Austin.*

PELTANDRA, Raf.—**P. Virginica**, Raf.; not uncommon; New Durham Swamp; common on Long Island, *Ruger.*

ALLA, L.—**C. palustris**, L; New Durham Swamp, *Torr. Cat.;* Orange Co., *Austin.*

SYMPLOCARPUS, Salisb.—**S. foetidus.**, Salisb.; very common; N. Y.

ORONTIUM, L.—**O. aquaticum**. L.; in creeks and swamps, Bergen, *Torr. Cat.;* New Durham; Closter, *Austin;* Jamaica, &c., *Allen;* Red Bank, N. J., &c.

ACORUS, L.—**A. calamus**, L.; common.

LEMNACEÆ.

LEMNA, L.—**L. trisulca**, L.; near Brooklyn, *Torr. Cat.;* near Bowery
Bay, and New Lots, *Ruger;* Closter, *Austin;* Passaic, &c., not
rare:—**L. Valdiviana**, Phillippi (L. Torreyi, *Austin*); Closter, fer-
tile, *Austin;* Patchogue, *Allen* (vid. vol. I, No. 9, § 71).—**L. per-
pusilla**, Torr.; not rare, along Staten Is. R. R.; Gravesend, L. I.;
var. **trinervis**, *Austin*, Pamrapo, Bergen Co., N. J., *W. H. L.*—
L. minor, L.; not uncommon, particularly abundant near Wee-
hawken, where it usually flowers: var. **obscura**, *Austin;* New
Durham? *W. H. L.;* var. **orbiculata**, *Austin.*—**L. polyrrhiza**, L.

(Spirodela); very common; N. Y.; fertile, Staten Is., vid. Vol I. No. 8, § 61, & seqq.

WOLFFIA, Horkel, Schleiden.—**W. Columbiana**, Karsted; Closter, rare, also Orange Co., *Austin*.

81. **Apocynum**, *No.* 1.—One of the most charming of our native plants is the *Apocynum androsæmifolum*, L., notwithstanding its long name. The beautiful clusters of rosy bells, with their pink bars and delicate fragrance, claim for it a place in the garden, where, however, we do not meet with it, but on open banks and by the side of roads or cultivated fields. It is well approved, too, by the insect tribe, who are in general much more appreciative judges of color and odor than we are. In Europe, where it is not native, it is cultivated in gardens, and according to Lamarck (*Encyc.* Article, *Apocynum*) is called *gobe-mouche*, which may be rendered *fly-trap*. I translate what he has to say on this subject. "The name *gobe-mouche* has been given to it, because the flies, in their greed of the honeyed juice which is found at the bottom of its flowers, insinuate their trunks by the narrow passage which is found between the small bodies which surround the ovaries, and the ovaries themselves, and when these insects would withdraw their bill, it is found to be held the faster, the more efforts they make to withdraw it. Thus these insects, half buried in the flowers, are caught as in a trap, and perish there without power to escape." Smith, in Rees' Encyc., says more generally and, as we propose to show, more accurately: "If flies alight on this plant they are frequently entangled by the glutinous matter and destroyed. Hence the plant has been called "*Herb a la puce*." The author of the "Journal of a Naturalist," London, 3d Ed. p. 78, says: "Allured by the honey on the nectary of the expanded blossom, the instant the trunk is protruded to feed on it, the filaments close, and catching the fly by the extremity of its proboscis, detain the poor prisoner writhing in protracted struggles till released by death, a death apparently occasioned by exhaustion alone; the filaments then relax and the body falls to the ground. The plant will at times be dusky from the numbers of imprisoned wretches." The figure this author gives of the anthers is certainly inaccurate, and he represents the anthers as standing apart at the top, a position which they cannot assume. His use of the term *filaments*, too, implies that he had no correct notion of the case. Last summer, while sojourning among the Catskill Mts., I spent hours in watching this plant, but was never so fortunate as to see an insect caught, though there were many traces of them to be found in the shape of lost members, &c. It would seem, therefore, that our native insects are not so readily entrapped.

These are all the authorities I have been able to find on the fertilization of *Apocynaceæ*, excepting always C. K. Sprengel, to whom I may have occasion to refer hereafter. If any of my readers can indicate any other writings elucidating the *modus operandi*, the information would be very gratefully received. W. H. L.

82. **Glen Cove, L. I.** **Trillium erectum**, L., is found in a swamp about three miles east of Glen Cove. I know of no other locality on L. I. **Galium verum**, L., grows just south of Glen Cove. **Stylosanthes elatior**, L., is quite common. **Rhamnus catharticus**, L., is frequently met with in the neighborhood of Oyster Bay village, also on West Neck, north westerly from the village of Huntington, L. I. ISAAC COLES.

83. **West Virginia.**—During a flying visit to the White Sulphur Springs, W. Va., in July last, I discovered a small quantity of *Eriogonum tomentosum*, Mchx., growing on a ledge of rocks about two miles from the Springs. There might have been three hundred plants, nearly all in bud, a few showing their *yellow* flowers. I gathered a score or more and left the rest to multiply. Crossing the Alleghanies by carriage road to the Peaks of Otter, I saw *Clematis Viorna*, L., beautifully in flower and fruit; also large quantities of *Spiræa corymbosa*, Raf., and frequent, high and dry, on the rocks, tall and stout *Melanthium Virginicum*, L. I was unprepared for that, as with us it grows along the margins of marshes, as at Bergen, N. J.

On the very top of the Peak of Otter, in among the immense boulders, is any quantity of *Dicentra eximia*, DC., luxuriant in its growth of leaves, which overtop and conceal the flowers. The flowers were badly eaten by insects, and although it seemed in prime, it was with great difficulty I could secure two or three good specimens; very abundant just there, also, is *Saxifraga erosa*, Pursh, and down the sides of the peak, *Veratrum parviflorum*, Mchx., just beginning to flower. The whole of the loose slender panicles seemed to be ready grown, all in bud, and only waiting for each other to blossom. The amount of *Castanea pumila*, Mchx., down the valley of Virginia to Harpers Ferry is wonderful everywhere; along road sides and in thickets it is the prevailing shrub. At Harpers Ferry, I saw for the first time *Lippia*, growing on the rocks with *Dianthera*, and on the banks *Baptisia alba*, R. Br., and plenty of the *Asimina*. T. F. A.

84. **Sesuvium pentandrum**, Ell.—On the 20th of August last, I again visited East Hampton, L. I., for the purpose of examining the locality of this plant. I found it in very considerable quanties, and procured many specimens from which I shall be happy to supply any of our botanists who may desire it. I think it would be better to collect it in September. I had hoped to determine whether the plant is annual or perennial, but I do not feel certain, though I believe it to be perennial, like the other species, *S. Portulacastrum*, L.

It is now clear that the latter plant, the only species described in our manuals of northern plants, will have to disappear from the next editions of such manuals, and be replaced by *S. pentandrum*, heretofore supposed to be a southern form.

It is probable that *S. Portulacastrum* has never been found north of the Carolinas, at least that species is not to be found from any northern locality, in any herbarium, so far as I am aware, in the country. It is not in that of Dr. Gray, nor in Dr. Torrey's.

September, 1872. J. S. MERRIAM.

85. **New Postage Law.**—*Partial Regulations under the New Postal Code, 1872. P. O. Department, June* 20, 1872. We have received this pamphlet from Mr. A. H. Curtiss of Virginia. Mr. Curtiss had written to the P. O. Department for information about some stray packages of plants, and received a note from James H. Marr, First Acting Assist. P. M. General, stating that "such packages should be mailed as 3d class mail matter at a pre-paid postage of two cents for each two ounces or fraction thereof," and referring to §§ 133 and 163 of the new Postal Code. Section 133 defines third-class mailable matter, in which are included seeds, cuttings, bulbs, roots, and scions. By the decision of the P. M. General, obtained by Judge Clinton of Buffalo, and recorded in the BULLETIN, Vol. II, No. 3, § 17, "*botanical cuttings*" would come under this head. Section 163 of the New Code gives the rate of postage, "one cent for each two ounces or fraction thereof. Double these rates shall be charged for books, samples of metals, ores, minerals and merchandise prepaid by postage-stamps." Botanical specimens cannot fairly be included in this exception. We suppose that Mr. Marr looked upon them as merchandise, which they in no sense are, we think therefore that upon appeal this decision would be reversed. The packages should be so put up that their contents may be inspected, and there should be no writing, according to law, though there is great inconvenience in sending specimens without a label. The package must not exceed twelve ounces in weight.

86. **New Publications.**—1. *Sequoia and its History.* There are probably few of our readers who have not by this time read Dr. Gray's Presidential address. The sagacity which long ago detected the similarity in the Floras of the eastern shores of the northern continents and its probable explanation, finds additional evidence in Heer's more recent investigation of the fossil botany of the Arctic zone, and Maximowicz's "admirable collections in Japan and adjacent countries." Dr. Gray's discourse is one of the first essays in what must be in the future a leading department in the science, viz: The History of the Evolution of Vegetable Forms.—2. *Synopsis of New York Uncinulæ*, by Chas. H. Peck, Albany. "The species of this genus [of *Erysiphei*] inhabit the living leaves of trees and shrubs, and make their appearance late in summer or in autumn." "The number of species inhabiting this State is unexpectedly large, seven being now known."

87. **Sedges and Grasses.**—All who have specimens of these orders, or know of stations, will oblige us by communicating them at an early day. We are in immediate want, also, of reports on *Potamogetons* and the succeeding orders of *Endogens*.

88. **New Localities.**—Mr. Miller finds *Myrica Gale*, L., abundant at Wading River, and Mr. R. W. Brown reports **Ascyrum stans**, Mchx., from Keyport, N. J.

89. **Apocynum**, *No.* 2.—Looking deep down into the bell of *Apocynum androsamifolium* we see what may be likened to a striped conical tent. A more satisfactory view may be had with the aid of a magnifier. This cone is formed by the five anthers meeting in a point: the stripes are the narrow intervals between them. The anthers are shaped like the head of an arrow, but the ends of the barbs are somewhat incurved and conceal the shaft or filament, which is besides bent inward toward the base of the style. This incurving of the base of the anthers makes the lower end of the space or groove between them a little wider than the upper part of the passage and might serve to catch the leg or proboscis of a fly and guide it to the groove. Facing this wider part of the interval, but a little lower, are the sharp triangular projections near the base of the corolla, and beneath, within the filaments, are the five glands or nectaries, probably representing an inner circle of stamens. The pink stripes of the corolla are alternate with its lobes, consequently opposite the stamens; they are sharply defined and form a sort of crown or scale at the junction of the lobes.

On investigating the interior of our conical tent, we find a curious and quite complicated arrangement. In the first place, the lower part or barb of the anther is destitute of pollen. Then, where the filament joins the anther, is a membrane surrounding the middle of the style and uniting it pretty strongly to the stamens, serving at once to hold the anthers in their fixed position, and to screen the base of the style below from the pollen above. The anther consists of two cells, which, when separated below, form what we have called the barbs. Above the insertion of the filament the inner walls of these cells are united into a short column or wall, and further up their edges again become free, and spreading outward nearly meet the edges of the outer walls of their respective cells, so that the slit for the escape of the pollen is almost lateral. Thus the inner side of the anther presents, near the top, the appearance of a smaller two celled anther within the larger one. We may call this apparent anther *antherion*, or little anther. Just below it, on each side of the column mentioned as formed by the consolidation of the inner cell-walls, are two little pockets, just at the end of the openings for the escape of the pollen in the sides of the *antherion*. These pockets are empty, unless they may contain the cell lining in a somewhat disintegrated form: I am not sure of this point. The upper portion of the cells of the *antherion* are also destitute of pollen, and apparently serve only as a protection for the small portion below them which is really polliniferous. The pollen grain is compounded of four spherules as in Periploca.

The pollen bearing portions of the anther, then, it will be seen, open along the lateral edges, and are separated from the corresponding edges of the adjacent anthers only by a very narrow groove, so that, if a small rough thread be drawn through this groove, the pollen on both sides will be disturbed, that is the pollen in the right hand cell of one anther and the left hand cell of the other. This arrangement brings to mind the pairs of pollen masses derived similarly from adjacent anthers in the closely allied family of the Asclepiadaceæ.

Just above the membrane or partition wall which divides the upper from the lower portion of the style, the latter is surrounded by five small and very glutinous projections, which abut against that portion of the anther which we called a column and are pressed a little into the pockets, so that, in consequence of the depression made by the column, they present somewhat the appearance of ten little knobs. They thus approach nearly the passage of the pollen on both sides of it, but do not block it up. The upper part of the style is glutinous and imperfectly two-lobed : it would naturally be supposed to be the stigmatic surface. Pollen grains are commonly found on it, whether in course of nature or in consequence of disarrangement by dissection. The lower part of the style, below the dissepiment which screens it from the pollen, is top-shaped and tapers down to the point where it joins the ovaries. The broadest portion is a little lower than the base of the anthers, where the space between them is widest, and would naturally afford a foothold for insects sipping the nectar. The filaments are parallel with the tapering base. I have found grains of pollen also but in less abundance on this broadest portion of the style, where it might have been left by an insect before drawing its foot or trunk up the groove, as it certainly must do sometimes.

I have found many cases of limbs of insects caught in the grooves between the anthers, and, in one instance, the remaining upper portion of a fly who had there "miserably perished," having been held by his proboscis. On another occasion, I found the pollen mass of an Asclepias caught in the base of the groove. To ascertain if a small object drawn through the groove would bring out the pollen, I availed myself of the hooked styles of a Geum. The hooked end came out with a supply of pollen held together by a glutinous substance, as if it had first brushed the glutinous processes that lie on each side of the entrance to the pollen, and next, coming in contact with the pollen, had brought it out. A few days after I found the mass perfectly solidified. If the limb of an insect were too large to more than brush the glutinous projections, or if this substance had begun to harden, it would be difficult for the insect to escape unmutilated.

The plant is quite fertile, but, nevertheless, the larger portion of the flowers fail to produce pods.

In the present paper I have endeavored to state the facts without offering an explanation, though, in trying to make my description intelligible, I could hardly avoid suggesting one. I do not suppose that I have discovered any new points in the structure of this marvellous flower, but I can not find that the mode of fertilization has yet been interpreted, and propose to offer some suggestions on this subject in a concluding article. W. H. L.

90. **Aquilegia,** Tourn.—A scholar suggests that this word is inex-

plicable as a derivative of *aquila*, eagle, but might be legitimately formed from *aqua*, water, and *lego*, to collect, the spurs being compared to water holders. The explanation in Gray's Manual—"from "*aquila*, an eagle, from some fancied resemblance of the spurs to talons—" is that given by Tournefort, the author of the genus. But Tournefort adds "*as they say*," "*ut aiunt*," showing that he only adopted a name in use. On this subject we have received the following communication. It must be remembered that Tournefort's date is about the year 1700. Our correspondent shows that the word is much older than that, though somewhat different in form. Possibly, as *aquileia*, it is really related to *aquila*. EDS.

I find a somewhat different account in the Herbal of Hieronymus Tragus, (*Anglice*, Jerome Buck) printed in Old German at Strasbourg in 1551. The plant is there called "Agley" and "Aglei," both ways of spelling being employed. A fine cut and accurate description leave no doubt of the identity of the plant; but the author had evidently no idea of the eagle-spurs, or of *aquila*, as, in describing its spurs, he likens them to those of the "Eisenhutlein und Rittersporen" (Monkshood and Larkspur.) Speaking of the name, the author identifies the plant as one sort of *Centaury* spoken of by Dioscorides and other ancient authors, the name *Centaury* having been anciently applied to this, as well as to several sorts of Compositæ, Gentians, Saffron, and other plants. The sort of Centaury to which this plant belonged, however, had two varieties, of which the larger is the Columbine, and was called both Centaureum majus and Centaurea solida, besides numerous other names. The author says it is called by the moderns "Aquileia, Alkaleia, Usi or Osir, [and] Agley, presumably the same as Aegilops." Aigilops is the ancient name of several plants; if we can connect Agley with *aigilips*, (steep, inaccessible, prop. inaccessible to goats,) [or *aigilos*] it would not be a bad name for the plant, considering its love for cliff-sides. But whether *Aquileia* and *Alkaleia* and *Aquilegia* are corruptions of "Agley," or what may be the definition of "Agley" I do not presume to determine.

I. H. HALL, 36 Pine st.

91. **Suffolk County Plants**—I have found in this vicinity during the past season, *Helianthus angustifolius*, L., *Rumex Engelmanni*, Ledeb, *Rhynchospora nitens*, Gray (at Wading River), *Panicum amarum*, Ell.; which I believe are new to Long Island. Of other species, I may mention: *Hottonia inflata*, Ell.; *Arethusa bulbosa*, L.; *Orontium aquaticum*, L.; *Smilacina stellata*, Desf.; *Hypericum adpressum*, Bart.; *Solidago odora*, Ait., *var. inodora*; *Lycopodium inundatum*, L., *var. Bigelovii*, Tuck.; *Eriophorum gracile*, Koch.; *Fimbristylis spadicea*, Vahl., *var. castanea*, Gray; *Andropogon Virginicus*, L., and *A. macrouros*, Michx. I found *Vallisneria spiralis*, L., in a quite swift but shallow stream, which is the outlet of Great Pond S. W. of Riverhead, with leaves only 2 or 3 inches in length.

Prunus Cerasus is thoroughly naturalized with us, the young trees springing up everywhere in hedges and along neglected fence rows.

Chelone glabra, L., I have found with 5 perfect stamens, while other flowers from the same plant exhibited the usual form.

Solidago lanceolata, L., I have found growing in dry soil by the roadsides, while other plants collected from a salt marsh were far more strongly honey-scented and scarcely rough-pubescent except on the margins of the leaves.

Muhlenbergia diffusa, Schreber, I find aping the manners of *M. Mexicana,* Trin., and becoming a weed of gardens, and near buildings.

Panicum proliferum, Lam., too, seems somewhat out of place in company with *P. capillare,* L., in a perfectly dry garden, although it made itself at home there.

Northville, L. I. HENRY W. YOUNG.

92. **Yucca filamentosa, L.**—Our correpondent, J. W. B., writes that, on carefully examining what remain of his capsules of this plant, he finds some of them perforated as described by Dr. Engelmann.

93. **Reassembling of the Club, Oct. 29th.**—Present: Messrs. Torrey, Le Roy, Allen, Bower, Hall, Hogg, Gerard, Leggett, Merriam, McIntyre, Morris, Payne, Redfield, Ruger, Wilber, Wood. Among the visitors were Dr. Newberry and Messrs. Froebel, Neerbach, and T. Hogg. Dr. Torrey and Mr. Redfield had during the summer recess visited the Western part of the Continent. One of the spoils brought back was a gigantic *Pterospora Andromedea,* Nutt., over four feet in height. Dr. Newberry exhibited a fossil *Onoclea,* undistinguishable from *O. sensibilis,* L., with the venation perfectly preserved. This specimen was from the Miocene of the Upper Missouri.

94. **Exchanges.**—Mr. E. S. Miller, Wading River, Suffolk Co., N. Y., wishes to exchange the plants of his region, particularly for North American Ferns.

TYPHACEÆ.

Typha, Tourn.—**T. latifolia,** L. Marshes and pools, *Torr. Cat.* Closter common, *Austin ;* Glen Cove, *Coles ;* Westchester Co., *Pooley Le Roy.*—T. **angustifolia,** L. ; similar situations, *Torr. Cat. ; Austin ; Pooley ;* I have never been able to satisfy myself that we have two species: the usual form in this vicinity answers to T. angustifolia, and is quite common. *W. H. L.* Vid. *State Flora.*

Sparganium, Tourn.—**S. eurycarpum,** Engelm. ; Closter, common, *Austin* ; Pleasant Valley, *W. H. L. ;* in ditches and small streams, *Torr. Cat.*—**S. simplex,** Hudson: Var. **Nutallii** ; Wading River, L. I. Var.-**androcladum** ; is apparently the prevailing form on and about the Island of New York.

NAIADACEÆ.

Naias, L.—**N. flexilis,** Rostk. ; rather common; Hackensack River, *Austin ;* Flushing, *W. H. L.*

Zannichellia, Micheli.—**Z. palustris,** L.; Allerton's 1861, *Austin ;* ditches, New Durham, *Austin ;* Var. **pedunculata** : Flushing, *W. H. L.*

ZOSTERA, L.—**Z. marina**, L.; common; in fruit, Easthampton, Suffolk, Co., *T. F. Allen*.

RUPPIA, L.—**R. maritima**, L.; common; Spuyten Duyvel, *Le Roy*; on the bank of a brook near Chester, Morris Co., N. J., 1854, *Austin*.

POTAMOGETON, Tourn.—**P. natans**, L.; common.—**P. Oakesianus**, Robbins, Peekskill, *Le Roy*.—**P. hybridus**, Mchx.; waters of the Hackensack, *Austin*; Staten Island, Silver Lake, *W. H. L.*; Wading River, *Miller*.—**P. amplifolius**, Tuckerman; probably not uncommon; Lake Mohegan, *W. H. L.*—**P. gramineus**, L.; waters of the Hackensack, *Austin*; Var. **graminifolius**, Fries; Jamaica, *W. H. L.*—**P. lucens**, L.; waters of the Hackensack, *Austin*; In creeks, *Torr. Cat.*—**P. praelongus**, Wulfen; Piermont, *Austin*.—**P. perfoliatus**, L.; common; Hackensack creeks.—**P. crispus**, L.; common in Morris Co., and at Piermont, N. J., *Austin;* Passaic, *W. H. L.*—**P. compressus**, L.; waters of the Hackensack, *Austin*.—**P. pauciflorus**, Pursh; "In the Passaic River and elsewhere," *Torr. Cat.*; waters of the Hackensack, *Austin*.—**P. pusillus**, L.; Hackensack and creeks, *W. H. L.*, *Austin*; Train's Meadow, *Ruger*.—**P. pectinatus**, L.; "Salt water ditches and shallow bays, near New York, and on Long Island." *State Flora*;—waters of the Hackensack, *Austin*.—**P. Robbinsii**, Oakes, waters of the Hackensack, *Austin*.

ALISMACEÆ.

TRIGLOCHIN, L.—**T. palustre**, L.; *Gray's Manual?*—T. maritimum, L.; New York Island, *Torr. Cat.*; shores of Long Island.

ALISMA. L.—**A. Plantago**, L.: Var. **Americanum**; common; N. Y.

SAGITTARIA, L.—**S. variabilis**, Engelm.: common, with most of the varieties; N. Y.—**S. calycina**, Engelm.; English Neighborhood, *Austin*; Peekskill, *W. H. L.*: Var. **spongiosa**; Peekskill, *W. H. L.*—**S. heterophylla**. Pursh; Peekskill. *W. H. L.?*—**S. graminea**. Mchx.; Jamaica, Flushing, *W. H. L.*—**S. pusilla**, Nutt.; Hackensack streams, *Torr. Cat.*; English Neighborhood, *Austin*; Passaic, *W. H. L.*; East New York, and Jamaica R. R., *Ruger*.

HYDROCHARIDACEÆ.

ANACHARIS, Richard.—**A. Canadensis**, Planchon; common. Vid. § 86.

VALLISNERIA, Micheli.—**V. spiralis**, L., common, particularly in the waters of the Hackensack and Passaic.

95. **Apocynum**, *No.* 3.—Before proceeding it is necessary to make some explanations in reference to the statements in the previous article. The empty space in the upper part of the anther is really between the cells of what I called the *antherion* and an outer coat of the whole anther, which coat is prolonged into a point upward, and these points meeting serve, I presume, to shield the parts of the flower within from the weather. Again, the wider part of the base of the style is not so low down as the base of the anthers, but about half way between that and the dissepiment or partition between the upper and lower parts of the style. In speaking of the cell walls of the anther, I used the term generally, for convenience of descrip-

tion, not having made a special investigation of what parts of the anther are really represented by the column and other processes. The very curious diaphragm which separates the two portions of the style is five-lobed, in consequence of a slight depression between the anthers, where, we may suppose, if fully developed, it would obstruct the passage of an insect's proboscis through the groove; its lobes are in consequence opposite the anthers. From the middle line of these lobes the glutinous secretions or glands arise, as may be seen more distinctly in the bud. They are, in this stage of the flower, in the form of an inverted arrow head, the point being on the lobes just mentioned, and the barbs rising obliquely towards the openings for the pollen. These barbs mature into the glutinous masses, one from different pairs being on either side of the groove. The upper part of the style, commonly considered the stigmatic surface, and which is furnished with the glutinous processes, is of a firmer consistency than the lower part, and, though pollen is often found on it under dissection, I have never found this pollen putting forth tubes. The part below the dissepiment is of a much looser texture, consisting mainly of curious oblong cells. Attached to the outside of this, just below the dissepiment, may often be found masses of pollen agglutinated together and protruding tubes in profusion, one tube from each of the four spherules of which the grain is composed. These would be interesting objects for a microscopist. The tubes are parallel and very different in other respects, but, nevertheless, the object reminded me of the spores of Equisetum.

Robert Brown, it is well known, showed that this is the portion of the style in Asclepias that is truly stigmatic, and succeeded in tracing the tubes to the ovaries, the placentæ, and finally the ovula. I have not succeeded in following them, far from it; but I think it is clear that this is the true stigmatic surface in Apocynum also. The fly probably dips its head down to get at the nectaries in the bottom of the cup, and, in drawing it back, sometimes gets its proboscis caught in the groove between the anthers, to which it is guided by their diverging bases. As the proboscis is drawn up the groove it passes the glutinous glands, which are easily detached when the flower is mature, and, being thus charged with one or both of these glands, draws out the pollen from one or both of the adjacent anther cells. Perhaps alarmed by this rude entertainment, the insect flies off to a more distant flower, where it goes through the same process, first, however, leaving the stranger pollen on the stigmatic surface. Or it may, perhaps, sip about the same bush, and being put on its guard, not be at once caught again in the same trap. However this may be, it is evident that the whole wonderful contrivance is to prevent self-fertilization. Observers are mainly indebted to Mr. Darwin for calling their attention to what proves to be a very general and most curiously varied arrangement in flowers to this one end. I might have mentioned that, where the filaments bend closely along the base of the style, they are provided with hairs; whether, as Sprengel would suggest, to protect the nectaries from rain, or whether to help the fly free itself from its incumbrance, or for both objects, is matter for conjecture.

This position of the stigmatic surface adds another to the many points of analogy between Apocynareæ and Asclepiadaceæ. There is, likewise, a wonderful resemblance in their mode of fertilization, at least, in the typical genera. If in any period of their history these quadruplex pollen grains of Apocynum should be massed together, and these upward pointing glands should reach and become agglutinated to the pollen masses, Apocynum would have to be classed with Asclepiads—with that section which has the glands below the pollen masses. It may be, as in the case of Orchids, that these similar contrivances have arisen independently; or it may be that Apocynum belongs to an ancestral stock from which the more perfectly specialized Asclepiad has branched off. It is even possible that the former is a degenerate descendant of the latter. Much depends upon the history of the peculiar glands of the stigma. I do not know that their origin has ever been accounted for in Asclepias. Brown in a masterly manner traced them from their first appearance as a furrow in the style, and perhaps nothing more can be done. In the more varied forms of Apocynaceæ, however, which seem to be the link between ordinary flowers and that very distinct tribe, it may be possible to trace them still further. One consideration persents itself forcibly in studying the structure of this flower, that is the multiplied series of organs, nine circles in all: 1, the five lobes of the calyx; 2, alternate with these the five lobes of the corolla; 3, alternate with these the five pink stripes forming a slight crown above; 4, again alternating, the five triangular processes at the base of the lobes of the corolla; 5, alternating with these, or, taking no account of these, with the divisions of the corolla, the five stamens; 6, of course alternating, the five nectaries; 7, the diaphragm; 8, the glands; 9, the bilobed style. The glands seem to be opposite the anthers, as are the lobes of the diaphragm also. What morphological value the most of these circles may possess, A. de Candolle has discussed (Ann. Sci. Nat., 3d Series, Bot., Vol. 1). He considers the diaphragm an extension of the filaments, but makes no mention of the glands. But these and other questions it is not my present purpose to pursue.

Two points, new perhaps, I think I have established—the position of the true stigma, and the mode of fertilization. W. H. L.

96. **ARCEUTHOBIUM shedding its seed.** — I visited the swamp in Warrensburg, the first week in October. I found the female plants of Arceuthobium nearly all gone; every effort that I made to cut twigs from the matted clumps, where the colonies of these strange parasites grow, brought them down in showers. Fearing that I should fail to get plants with full seed vessels, I picked a single plant with vessels very much swollen. While holding it gently between my thumb and finger, to observe it more closely, I felt the tiniest recoil of the capsule, and the seed struck me a smart blow in the face. I gathered another, and another, and each pretty little

bomb went off with a force that must have carried it several feet away.

The seed flies out of the base of the capsule, instead of the top, but its position on the plant makes that the top, as when ripe, the vessels hang with the true summit turned downward.

I found the seeds and empty seed vessels lodged all about on the branches. The plants which have ripened seed, fall off nearly together, those which have not blossomed, or have failed to be fertilized, probably remain for another year. When the seeds are being sown, there must be quite a brisk bombardment going on for several days. Isolated colonies of Arceuthobium in forests may have been planted by seed adhering to the feet of birds. L. A. M.

97. **Suffolk County Plants.**—I have found the following plants about, here this summer, *Sarracenia purpurea*, L., at River Head, *Arabis perfoliata*, Lam., and *Camelina sativa*, Crantz., a single plant of each. *Reseda* Luteola, L., roadside, Mt. Sinai, L. I. with *Mentha aquatica* L., Var. *crispa*, Benth. *Hudsonia ericoides*, L. grows plentifully at Baiting Hollow ; *Drosera filiformis*, Raf., common, *Hypericum Canadense* L. Var. *major*, Gray, at Long Pond, Wading River, and Edward's Pond. Middle Island.—*Saginia procumbens*, L., very common. *Polygala cruciata*, L., and *P. Nuttallii*, Torr. & Gray, are both common.—*Desmodian laevigatum*, DC., at Manor Station, L. I. R. R.—*Phaseolus helvolus*, L. common, *Galactia mollis*, Mchx., I found one clump of at Long Pond.—*Prunus Americana*, Marshall, I have only met once.—*Aster spectabilis*, Ait., and *A. concolor*, L., both common. *Gnaphalium purpureum*, L., common.—*Pyrola chlorantha*, Swartz, very common in the pine woods.—*Utricularia minor*, L., and *U. intermedia*, Hayne, both growing in a pool together. I notice that these flower in May and the early part of June, while *U. purpurea*, Watt.; *U. resupinata*, Greene, *U. inflata*, Watt., *U. gibba*, L., *U. vulgaris*, L., *U. cornuta*, Mchx., and *U. striata*, Le Conte, do not flower until August. I find them all here. *Polygonum Careyi*, Olney, at Long Pond and *P. ramosissimum*, Mchx., borders of salt meadows.—*Sagittaria calycino*, Engelm., Var. *spongiosa*, which I reported last year, proves to be *S. graminea*, Mchx.—*Arethusa bulbosa*, L., common at River Head and Manor.—*Cyperus erythrorrhizos*, Muhl., grows plentifully at Edward's Pond, Middle Island.—*Scirpus subterminalis*, Torr., grows at Deep Pond, Wading River.—*Rhyncospora nitens*, Gray, grows plentifully at Long Pond, with the typical form of *R. macrostachya*, Torr., the one I reported last year was the *diffuse variety*.—*Juncus pelocorpus*, E. Meyer, grows very plentifully here.—*Sporobolus serotinus*, Gray, is very common at River Head.—*Botrychium simplex*, Hitch. sparingly at River Head.

Wading River, Dec. 5th, 1872. ELIHU S. MILLER.

***Terms**—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.*

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

BULLETIN

OF THE

TORREY BOTANICAL CLUB.

Vol. IV.] New-York, January, 1873. **[No. 1.**

1. **Meeting of the Club.**—At a regular meeting of the Torrey Botanical Club, held at the Herbarium, Col. Coll., January 7th, 1873, there were present, Messrs. Ruger, Wilber, Gerard, Barstow, Loew, Day, Bower, Hyatt, Hogg, Leggett, Merriam, Pollard, Le Roy, A. J. Ebell, A. Gatchett, and Dr. Torrey in the chair.

The Charter granted by the State, April 21st, 1871 to "The New York Botanical Club," and as amended, April 29th, 1872, to "The Torrey Botanical Club," was read and unanimously accepted, and Messrs. Leggett, Merriam and Hogg appointed a committee to prepare a Constitution and By-Laws to be presented for consideration at the next regular meeting of the Club, January 28th, 1873.

P. V. Le Roy, Secretary.

2. **A Bulletin Fund.**—The Bulletin is now entering upon its fourth year, and we know has been of service in bringing the students of Botany throughout the country into communication with each other. Our experience has satisfied us that this service was much needed. Our receipts do not yet quite cover our expenses, but the deficiency for the three years will probably not exceed twenty or thirty dollars.

It is our ambition to enlarge our little publication and make it perennial. To do this there is need of funds. Professor Tyndall pointed out, the other evening, that the votaries of science are not usually well endowed in this respect. We must look, therefore, for assistance to our men of wealth who take an interest in science either for its own sake or for its value as an essential element of civilization. An endowment of about three thousand dollars, would enable us, with our present list of subscribers, to double the number of pages and, perhaps, add some much needed illustrations. It is believed that the increased facilities would enlarge the number of our correspondents, and more than double the efficiency of the work in promoting the study of Botany.

We have now a charter, so that all funds contributed for this purpose will be legally guarded and strictly applied. Communications on this subject should be directed to the Treasurer of the Torrey Botanical Club, Herbarium, Columbia College, New York.

3. **Apocynum.** *No. 4.**—The facts presented in relation to the true stigmatic surface, the diaphragm, and the origin and position of the

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* Some slight discrepancies in these articles are accounted for by the fact that, when begun, they were only intended to illustrate the fertilization of the flower, but the dissections necessary for accurate description disclosed some new facts about the glands that were too interesting and too closely connected with the subject to be omitted.

glands, would seem naturally to suggest some theoretical views which may prove of use as a guide for future investigations.

As the two styles in Apocynum and Asclepias are more or less distinct both above and below, and each of them belongs to a simple pistil, it is not easy to account for a five angled stigma with five pairs of glands. But if, as De Candolle supposes, the diaphragm in Apocynum is an extension of the filaments which has become attached to and surrounds the styles, its fivefold character is readily accounted for in Apocynum, and, in view of the close relationship of the Orders and the similarity of their fertilization, it would, perhaps, not be unreasonable to extend his supposition to what is called the peltate stigma of Asclepias.

It has been shown that the glands in Apocynum arise in pairs from the middle of the lobe of the diaphragm, where it joins the filament. It is possible, therefore, that these glands are likewise a modification of some organ of the stamen. Each half stretches away from the point of origin of the pair towards the adjacent cell of its own anther, but when mature, and ready to be carried away with the pollen, it lies so near to the half of the next pair on the right or left, that a new pair seems to be made up from and between adjacent stamens. Now Brown has shown that the dark glands in Asclepias consist at first of two distinct parts, and the halves are really related to different anthers. The parallelism of the cases may justify the hypothesis that these glands of Asclepias are members of the stamen, if that should prove to be true of Apocynum. Perhaps a clue to the glands is the pollen missing in the lower part of the anther of Apocynum.

On this theory, which is only an extension of what is already recognized, the so-called stigma and the glands of Asclepias are merely a modification of the stamens, arising from the adhesion of the latter to the style. The peculiarity of such adhesion in these two Orders is that it takes place in the upper instead of the lower part of the organs.
W. H. L.

4. **Lygodium palmatum**, Swartz.—I have found the beautiful *Climbing Fern* growing in the drier parts of a sphagnum bog, some two miles westerly from Mount Pleasant, which is a little southerly from Matawan, Monmouth Co., N. J. The specimens were very fine and full of fruit.
S. Lockwood.

5. **Aquilegia.**—In the *Flowering Plants of Great Britain*, by Anne Pratt, we find the following: "The French term this plant *L'Ancolie*; and it is *Der Ackeley* of the Germans. The Italians call it *Acquilezia*." In the Penny Cyclopædia we find: "*Aquilegia*, literally the *Watergatherer*, because the leaves collect water in their hollow." A friend informs us that he has noticed this peculiarity.

6. **Exchanges.**—J. W. Congdon of East Greenwich, R. I., desires to make arrangements for exchange of collections to be made the following season. He will collect all the less common plants of Rhode Island, and of Northern Vermont, including the Willoughby plants. He has quite a number of them in hand now.

He particularly desires to secure New Jersey, Southern and Western plants.

7. **New Publications.**—*The American Journal* for Dec. contains an instructive notice by Dr. Gray of Decaisne's *Monograph of the Genus Pyrus.*—The *American Naturalist* for Dec., appetizing articles on *The Vegetation of the Lower Wabash Valley,* and the *Alpine Flora of Colorado;* for Jan., Mr. Bailey on *Our Poisonous Plants,* and Mr. Biscoe on *The Study of Lichens.* We recommend all our readers to subscribe to this most deserving Journal. We notice an oversight in not crediting us with Mr. Merriam's article on *Trees and Rain.*—*The Popular Science Monthly* has an article on *Cultivating Wild Flowers,* by Rev. S. Lockwood.—*Nature,* Oct. 10 and 17, has some very interesting observations on the *Fertilization of a few common Papilionaceous Flowers.*

ORCHIDACEÆ.

ORCHIS, L.—**O. spectabilis**, L.; not rare; High Bridge; Hoboken; New Durham, etc.

HABENARIA, Willd., R. Br.—**H. tridentata**, Hook.; not uncommon; New Durham and Secaucus swamps; Closter, *Austin*; Big Swamp, Chatham, N. J.; Staten Island, *W. H. L.*—**H. virescens**, Spreng.; not uncommon; Closter, Secaucus, Chatham, N. J.; Yonkers, *Pooley;* Glen Cove, *Coles.*—**H. viridis**, R. Br., var. **bracteata**, Reichenbach; Closter, very rare, *Austin.*—**H. Hookeri**, Torr.; Westchester Co., *Le Roy;* abundant in Orange Co., *Austin.*—**H. orbiculata**, Torr.; Closter, very rare, *Austin.*—**H. cristata**, R. Br.; New Durham Swamp, *Torr. Cat.,* but not reported of late years.—**H. ciliaris**, R. Br. In a swamp in Love-lane, and in Hoboken meadows, *Torr. Cat.;* Tappan and Tennafly, *Austin;* Staten Island and Redbank, N. J., *W. H. L.;* Keyport, N. J., *R. W. Brown;* Glen Clove, *Coles.*—**H. blephariglottis**, Hook.; Keyport, *Brown;* Closter, *Austin;* Secaucus, *W. H. L.*—**H. lacera**, R. Br.; common in all our districts; N. Y.—**H. psycodes**, Gray; common; Closter, *Austin;* Glen Cove, *Coles;* Chatham, N. J.; *W. H. L.*—**H. fimbriata**, R. Br.; "Meadows about Elizabethtown, N. J.", *Eddy in Torr. Cat.*

GOODYERA, R. Br.—**G. pubescens**, R. Br.; common; N. Y.

SPIRANTHES, Richard.—**S. latifolia**, Torr.; reported from Glen Cove, but needs confirmation.—**S. cernua**, Richard; common.—**S. graminea**, Lindl., Var. **Walteri**; common; Staten Island and Summit, N. J., *W. H. L.;* Closter and Morris Co., N. J., *Austin;* Train's Meadow, Newtown, L. I., *Ruger.*—**S. gracilis**, Bigelow; the most common form in all our districts; N. Y.—**S. simplex**, Gray; Tottenville, Staten Island, rare, *W. H. L.;* Keyport, quite common, *Brown;* Closter, rare, *Austin.*

LISTERA, R. Br.—**L. cordata**, R. Br.; probably grows in our region, though no specimen properly authenticated is at hand.—**L. convallarioides**, Hook.; "In the cedar swamp at New Durham," *Torr. Cat.*

ARETHUSA, Gronov.—**A. bulbosa**, L.; Closter, rare, *Austin;* New Lots, *Merriam;* Glen Cove, *Coles;* New Durham Swamp, formerly, *W. H. L.;* "In the cedar swamp, Weehawk." *Torr. Cat.:* Keyport, common, *Brown.*

POGONIA, Juss.—**P. ophioglossoides**, Nutt.; abundant in the swamps of Long Island, New Jersey, and Westchester Co.—**P. pendula**, Lindl.; "Fort Washington, New York Island, and on the high hills of Staten Island," *Torr. Cat.;* Palisades, not rare, *Austin;* Englewood and Kingsbridge, *Bower.*—**P. verticillata**, Nutt.; Huguenot woods, Staten Island, *W. H. L.;* Jamaica, *T. F. Allen;* Tennafly, *G. I. Cook;* used to be very abundant near Closter, rather rare now, *Austin.*—**P. affinis**, Austin; used to grow near both Closter and Norwood, now exterminated, *Austin.*

CALOPOGON, R. Br.—**C. pulchellus**, R. Br.; common in the same situations with *Pogonia ophioglossoides;* Yonkers, *Pooley.*

TIPULARIA, Nutt.—**T. discolor**, Nutt.; Inwood, *W. W. Denslow;* Bergen Point and Chatham, N. J., *W. H. L.;* Big Swamp, near Madison, N. J., *Dr. Bumstead;* near Newark, *Bower;* used to grow near Closter; the patch is now exterminated, *Austin.* Probably not very rare, but difficult to be detected. I have found it in rich wet woods on ridges and hummocks where it would just escape inundation in the spring, and, though I had marked the neighborhood where it grew, had difficulty in distinguishing from the rubbish of the grove its slender neutral tinted scape and spike, which appear about the end of July. *W. H. L.*

MICROSTYLIS, Nutt.—**M. ophioglossoides**, Nutt.; New Durham Swamp, *Torr. Cat.;* Closter, rare, *Austin;* Keyport, scarce, *Brown;* Redbank, N. J., not rare, *W. H. L.;* Jamaica, *Ruger.*

LIPPARIS, Richard.—**L. liliifolia**, Richard; Harlem and Weehawken, *Torr. Cat.;* Inwood, *Denslow;* Long Island, *Coles;* Keyport, *Brown;* Closter, not rare; used to be common, partly in water, in the New Durham swamp, *Austin.*—**L. Loeselii**, Richard; Inwood, *Denslow;* Williamsbridge, *W. H. L.;* Closter, rare, *Austin.*

CORALLORRHIZA, Haller.—**C. innata**, R. Br.; Glen Cove, *Coles?*—**C. odontorrhiza**, Nutt.; Bloomingdale, *Torr. Cat.;* Inwood, *Denslow;* Closter, common, flowers in October, *Austin:* Chatham, N. J., and Staten Island, late in September, *W. H. L.*—**C. multiflora**, Nutt.; common; N. Y.

APLECTRUM, Nutt.—**A. hyemale**, Nutt.; New Jersey, *Torr. Cat.;* Westchester Co., *Mead, Le Roy:* Closter, rare, *Austin.*

CYPRIPEDIUM, L.—**C. parviflorum**, Salisb.; Palisades, rare, *Austin:* Tenafly, *G. I. Cook.*—**C. pubescens**, Willd.; New Jersey, *Torr. Cat.*—**C. spectabile**, Swartz; "In the cedar swamp near Weehawk." *Torr. Cat.;* Sparta, Sussex Co., N. J., *Austin.*—**C. acaule**, Ait.; not rare; Closter, common, *Austin;* Jamaica, *Ruger;* Keyport, *Brown;* abundant at South Amboy and on Long Island, probably found in all our districts.

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AMARYLLIDACEÆ.

HYPOXYS, L.—**H. erecta**, L.; common; N. Y.

HÆMODORACEÆ.

ALETRIS, L.—**A. farinosa**, L.; New York and New Jersey, *Torr. Cat.;* Closter, common, *Austin;* Keyport, *Brown;* Jamaica; Staten Island; Chatham, N. J., etc.

IRIDACEÆ.

IRIS, L.—**I. versicolor**, L.; common; N. Y.—**I. Virginica**, L.; Closter, common, *Austin;* Hackensack meadows; Long Island, *State Flora, Miller, Coles, Ruger.*

PARDANTHUS, Ker.—**P. Chinensis**, Ker.; Preakness, *Ficher;* between Jamaica and Middleville, S. S. R. R., L. I., *Ruger.*

SISYRINCHIUM, L.—**S. Bermudiana**, L.; common; N. Y.; with white flowers, S. S. R. R., near Jamaica, *Ruger.*

DIOSCOREACEÆ.

DIOSCOREA, Plumier.—**D. villosa**, L.,; common; N. Y.

8. **Trees and Rain.**—[In Vol. III, No. 8, was a short but very interesting account of the desiccation of the Island of Santa Cruz, W. I. Mr. Merriam, the writer, has kindly sent us the following communication from the friend who was his authority for the facts. The story of the Lake of Valentia is not new but very apposite, and on account of the importance of the subject, may claim repetition even in our limited space.]

Your brief published statement concerning the diminution in the rainfall of the Island of Santa Cruz is in the main correct, save that it gives the idea of a more rapid change than has probably taken place. At my former visit, twenty-seven years ago, the desiccation had undoubtedly made some progress, but it had not been sufficient to make itself manifest in a very marked degree.

The change from fertility to barrenness, which at first must have been almost imperceptible, is no doubt taking place in an accelerating ratio. Every new plantation swallowed up by the onward march of desolation, augments the cause, and renders the arrest of the evil more and more hopeless. This movement is from the East, (the windward end of the island,) towards the West, and is now quite conspicuous. Every few years an estate, formerly green with cane fields, becoming incapable of producing further crops, has to be abandoned to the graziers, whose cattle find a meagre pasture upon it a few seasons longer. These are in turn driven off, and the land is entirely given up. Henceforward it becomes, if not quite a desert, at least a barren waste, producing only a sparse and prickly vegetation, over which a few arborescent cacti reign supreme. A narrow belt of green lines the sea shore of this region, consisting of cocoa-nut palms, the poisonous Manchineel, the sea side grape, and a few shrubs, whose natural habitat is along the high water mark; but, inland, cultivation is impossible without constant irrigation. As there are no streams upon the island, with the exception of a few rills chiefly near the western end, and the wells are failing, no means remain to force life from the unwilling soil. Some attempts were at one time made to arrest this insidious advance, but too late to be effectual. A planter, I was told, not long since set out a thousand trees upon his estate, and lost every one. It is probable that had this remedy been universally adopted in time, there might be a more hopeful future for Santa Cruz. But the final depopulation of this beautiful island, seems now to be written indelibly among the decrees of fate.

St. Thomas, an island lying thirty miles distant, is similarly affected. This island, however, being loftier, and having scarcely any level land, seems to attract to itself a rather more liberal amount of moisture from the clouds.

About fifty miles westward of these islands, and in the same parallel, lies the large island of Porto Rico. The land here is almost wholly mountainous, the eastern ridges rising to three thousand feet. A large portion of the interior is still covered with primitive forest, a tangled tropical vegetation of vivid perennial verdure. The rainfall is abundant, and the soil yields bountiful crops of coffee and sugar, with a great variety of fruits.

The contrast between neighbouring islands so similarly situated is most striking. The sad change which has befallen the smaller ones is, without any doubt, to be ascribed to human agency alone. It is recorded of these, that in former times they were clothed with dense forests, and their oldest inhabitants remember when the rains were abundant, and the hills, and all uncultivated places, were shaded by extensive groves. The removal of the trees was certainly the cause of the present evil. The opening of the soil to the vertical sun, rapidly dries up the moisture, and prevents the rain from sinking to the roots of plants. The rainy seasons in these climates are not continuous cloudy days, but successions of sudden showers, with the sun shining hot in the intervals. Without shade upon the surface the water is rapidly exhaled, and springs and streams diminish. There is also, as many believe, an electrical action produced by the points of leaves upon the atmosphere, compelling it to yield up its moisture. However feeble may be this effect from a single tree, the myriad spears of a whole forest presented to the sky, undoubtedly do exert a marked and powerful influence. It is probably from such a combined action that the drying up of the soil from the removal of the trees,—destroying the balance of nature,—goes on with ever increasing rapidity.

An equally marked example of the effect we are considering, is seen in the small island of Curaçoa, lying in latitude 12° N., sixty miles from the coast of Venezuela. I visited this island in the year 1845, and found an almost perfect desert, where, according to the testimony of the inhabitants, had once been a garden of fertility. Abandoned plantations, the recent ruins of beautiful villas and terraced gardens, and broad arid wastes without a blade of grass, shewed how sudden and complete a destruction had fallen upon this unfortunate little island. The cause was the cutting down the trees for the export of their valuable timber. The effect followed even more rapidly than at Santa Cruz, as the island lies five degrees farther to the South, and the heat is more intense. The rains have almost entirely ceased, and fresh water is among the luxuries. Almost within sight of Curaçoa is the coast of the Spanish Main, covered with the rankest vegetation, over which the burdened clouds shower down abundant blessings.

Still another example of the connection of such cause and effect is furnished in this same tropical regions. It is further interesting as a curious instance of the influence of *political* changes upon climate. Sir Charles Lyell, describing the Lake of Valentia in Venezuela, a broad sheet of water surrounded by a wide belt of cultivation, tells us that the *level of the lake* has fluctuated with the varying fortunes of this unhappy Spanish republic. From time to time a fierce revolution, more devastating than tropical storm, has swept over the land. In these cruel wars among brethren nothing was spared. The inhabitants were slaughtered and the land laid waste. In this burning region, on the line of the maximum temperature of the globe, nature quickly resumed her supremacy over the works of man. A riotous vegetation sprung up on every side. Tilled fields reverted to forest. The streams augmented, and the *level of the lake was raised.* Then came an interval of peace. The land was inhabited once more; the forests were removed, the streams dried, and the lake sank to its former level. Several such tides in the waters and in the affairs of men, are recorded, furnishing convincing proof, if proof is needed, of the intimate relation of atmospheric moisture to vegetable life. Humboldt, in his personal narrative, relates his visit to the lake of Valentia, and his measurement of its changes of level and coast line.

In view of these facts, what are we to expect in our own country, but the like results, less rapid perhaps, but none the less sure, from the unrelenting warfare which is carried on against our ancient forests? The thought may well startle us. How shall we arrest so fearful a fate?

FRED. HUBBARD.

Jas. S. Merriam, Esq. *New York, Jan. 2, 1873.*

9. **Mistletoe.**—In England at present, as is well-known, the mistletoe is rarely, or almost never found growing upon the oak. Indeed, I have read in some recent authority that only three oak-trees are known in all Great Britain with mistletoe upon them.

Being in England last Christmas day, and observing the mistletoe everywhere conspicuous, in company with the holly, ivy and laurel, I made inquiry, wherever I could get a chance, as to whence the supply was obtained. Some knew only that just before Christmas day, at the markets, one could get a bunch of mistletoe, holly and ivy to hung in the window, for "tuppence" or more, according to quantity and quality. I saw few people who had seen it growing; and those had only seen it upon crab-trees or old apple-trees, never upon an oak; and hardly any would believe that it could grow on an oak. Nor had they ever seen it except in the west of England. Generally, they thought that it grew only in England. At a wholesale stand in a market in Liverpool, the day after Christmas, I saw a very large bunch on a piece of an apple-tree limb, the branches of mistletoe being as much as four feet long, and the thickest part of some branches, an inch and a half or two inches in diameter. The price of that bunch then, the day after Christmas, was five shillings sterling. The market man said he believed it came from Kidderminster; and that the market supply came from the west of England. However, I had several opportunities to inquire of well-informed business men, familiar with the imports and exports and shipping of England, and they uniformly gave me quite another account, which, in the words of one of them, as nearly as I can remember, is the following: "O yes, I know all about the mistletoe, "you know: it is a fungus, you know; a thing that grows on the "branches of trees, you know. I never saw much of it in England; "it always grows on knotty old apple-trees: never on an oak. They "tell some rubbish about oaks and Druids and the sacred plant, you "know, and believe that it is the native English thing, you know, "and, particularly among the lower classes, good to kiss the ladies "under at Christmas, you know—a sort of harmless bounce, a pious "deceit, that does very well, you know. But I've seen no end of it "in Belgium, on old orchards, apple-trees that are lumpy and don't "bear much fruit; and at Christmas time they import immense "crates of it from Belgium into England: crates of immense size—"most surprising numbers of them—and supply the whole English "market. It's just as good, you know, for there's not much more "mistletoe than Druids in England now, you know."

I learned also, that, according to general report, the mistletoe was propagated by boring holes in the bark of trees, deep enough to get at the sap, and inserting the broken berry, or the seed with its viscous covering.

Isaac H. Hall.

10. **Financial.**—Subscriptions for 1873 are now due. It would facilitiate transmission if, along with their subscription money, our friends remitted ten cents for prepayment of postage for the remainder of the year. Some have sent us double the amount necessary, viz., at the old rate of postage. We shall credit them with the excess.

11. **List of Botanists.**—We propose publishing a Directory of Botanists in the United States. Our correspondents in each State or locality would aid us by sending us the names and addresses of those known to them to be interested in the study.

12. **Orchids.**—Additional localities are: **Habenaria cristata**, R. Br., Secaucus, *Bower;* **H. blephariglottis**, Hook., Babylon, L. I., and generally along the south shore, between Babylon and Jamaica, *Merriam.*—**Pogonia verticillata**, Nutt., Woods at New Lots, L. I., *Merriam.*—**Liparis liliifolia**, Rich., and **L. Loeselii**, Rich., shady moist hill sides back of Nyack, *Merriam.*—**Corallorrhiza odontorrhiza**, Nutt., Laurel Hill, Jamaica, L. I., *Ruger.*

Terms—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy, per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

Vol. IV., No. 3.] BULLETIN OF THE TORREY BOTANICAL CLUB. [New York, March, 1873.

DEATH OF DR. TORREY.

On the evening of the 29th of January, Dr. Torrey presided at the meeting of the Club for the last time. We all noticed that he looked more infirm than usual, and the shadow of the coming event fell upon us. The next day he had an attack of pleurisy, which left him too weak to recover. He preserved, however, the clearness of his mind to the last. Not being able to meet with us on the 25th of February, he sent us a cheerful note and a botanical communication which we publish below. He died about 6 P. M., Monday, March 10th. The funeral services were performed at Dr. Hastings Church, on 42d Street, Thursday, March 13th. The members of the Club from far and near attended in a body, each wearing a sprig of *Torreya*, as an appropriate badge. Among the mourners were representatives of the Society of the Cincinnati, and of the various academic and scientific associations with which the Dr. had been identified for the greater part of the century. The pall-bearers were Dr. Parker, Dr. Delafield, Dr. Agnew, Prof. Asa Gray, Prof. Henry, Gen. Roome, President Barnard, and Mr. Albinola. The profuse offerings of flowers to mark affection for the dead were certainly never more appropriate. The body was conveyed the next day to Woodlawn Cemetery.

Dr. Torrey was in his 77th year, and from boyhood had been devoted to Science, and rendered her effective service. When a mere lad, as we have heard him relate, he corresponded with Curt Sprengel, one of the most eminent botanists of his day. His Catalogue of the Plants about New York was reported to the Lyceum, of which he was a founder, in 1817, when he was nineteen years old. 21 His influence upon the development of the science of Botany in this country has been from that time to the present so large and so constant, and his intercourse with its students so extensive, so instructive and so genial, that probably every botanist in America feels that in him we have lost a scientific father and a personal friend. On another occasion a more competent hand will present the record of his contributions to Botany.

The sense of a great loss comes especially home to the members of the Club, who for the last six years have been in the habit of meeting him monthly. The social character of our reunions gave us opportunity to become acquainted not only with his learning, his sagacity, his caution, and his integrity—qualities inseparable from a high scientific standing; but also with his personal bearing, his enthusiasm, his ingenuosness, his friendliness, his geniality—charms which suffered no impair by the touch of time*. To be interested in Botany was a recommendation to Dr. Torrey: the person shared in his love for the science. This was touchingly shown in the tenderness with which he always recalled the departed, and to this trait, no doubt, was partly due his wide influence. The cordiality with which he extended to us the use of his library and herbarium, the kindly interest with which he entered into our inquiries, assisted us with his advice, and bore us in mind when he was absent in the South or West, and, in a word, the habit we had of referring to him in all our botanical interests, make us feel almost that with his the life of the Club has departed.

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* On his return from Florida last Spring, the Dr. was rallied upon going to seek the Fountain of Youth, when he retorted, "Give me the Fountain of Old-age. The longer I live the more I enjoy myself." There is nothing finer in the *De Senectute.*

That this feeling exists is perhaps the most genuine homage that could be paid to the worth of our late President. Against it, however, it is our duty to strive. It was certainly not for want of social opportunities that a man so much in request gave up his evenings to us, but to foster the interests of his favorite science, to which the organization of the Club gave promise of contributing. And, on our part, when we adopted his name in his lifetime, the proposer of that title certainly, and probably all of us wished to convey to him the assurance that it was a name that we " would not willingly let die," but would endeavor to honor in efforts for the advancement of the study of Botany in this vicinity, and even more widely, if in any way we should be able. In fact we almost promised this in so many words the last time he met with us. It devolves upon us, likewise, as the only organization in this community especially devoted to this science, to watch over the interests of the Herbarium, in which we have had our being, and whose fate was a constant source of anxiety to its founder. The sense of these duties, it is believed, will carry the Club forward.

14. Dr. Torrey's last communication to the Club.—[Dr. Torrey not being able to meet with the Club, Feb. 25th, sent the following note to the temporary chairman.]

The day after the last meeting of the Club, I was attacked with Pleurisy. This, with very active treatment for several days, was cured, so that I suffered no more pain; but I was left so extremely weak, that ever since I have spent most of my time in bed. It is about a month that I have not been allowed to go down stairs. It is nearly fifty years since I had a sickness of more than a few days duration. My physician thinks that I am now slowly mending.

As *I* am not the *Botanical Club*, it seemed best that a regular meeting should be held, although I shall not be able to join your company. Tell the members how much I regret this deprivation; but I shall be with you in fraternal sympathy, and hope you will have a good time. I send, as my representative, the picture painted by my niece, Mrs. Daniell, of the Herbarium with your *chairman* sitting at his work! * * * *

The following you can read to the Club and then use it for the Bulletin. JOHN TORREY.

COLUMBIA COLLEGE, Feb. 25th, 1873.

15. On a new species of Phyllanthus.—In the Pacific R. R. Expedition of the late Gen. Whipple, in 1853-54, the botanist, Dr. G. M. Bigelow, collected, on the sandy banks of the Canadian River, a low annual plant having all the characters of a Phyllanthus, but differing from all the described species of that numerous genus (and indeed from the whole order of Euphorbiaceæ) in the position of the ovules. Instead of being suspended from the summit of the cells they seemed, in the youngest state, to be fixed to the lower part of the cell, and to be somewhat ascending. The plant is not described in the Botanical Report of the Expedition, but was laid aside for future study and not taken up again until lately. In order to obtain the opinion of the highest authority in Euphorbiaceæ, my friend Dr. Gray sent a specimen of the plant to Dr. J. Müller, of Geneva, the author of several works on the Natural Order and of the elaborate monograph on the same in the Prodromus of De Candolle. His answer is contained in the accompanying extract from a letter to Dr. Gray, dated January 7th, 1873.

"The fragment of the new Arkansas Phyllanthus is curious as "an intermediate form between hanging and ascending ovules. "The ovules appear ascending because their micropylar part is "more elongated than usual, or the rhapheal part shorter compared "with the micropylar (the rhaphe is distinct), but the whole ovule "is fixed, in the young state, much nearer the middle than the "base. All this does not change the character of the order quoad "direction of micropyle and radicula, but it requires a modification "of the terms upon form and attachment of ovules: *Ovules hang-* "*ing and anatropal or laterally fixed and hemianatropal.*"

16.—New or Little-known Ferns from the United States.—No. I.

1. Asplenium Bradleyi, n.sp.—Mature plant 8-10 inches high; rootstock short, covered with narrow acuminate fuscous-black scales; stipes tufted, slender, ebeneous, as in the lower half or two thirds of the rachis; fronds membranaceous, oblong-lanceolate, varying to linear-oblong, the largest ones 5-7 inches long, and 1½-2 broad, pinnate; pinnæ rather numerous (8-12 pairs), the lower ones more distant than the median ones, and of similar size, all short-stalked, oblong-ovate, obtuse or acutish, more or less incised, in the largest pinnatifid with oblong lobes which are toothed at the apex, in the smallest deltoid-ovate, slightly toothed; fruit-dots short, near the costules; indusium delicate.—Top of Walden's Ridge, Cumberland, Mts , near Coal Creek, East Tennessee, *Prof. F. H. Bradley*. Professor Bradley has favored me with a large suite of specimens of this Fern, which in some of its more compound forms is related to *A. montanum*, from which it differs in its larger size, more membranaceous texture, narrower outline of the fronds, and shorter stalked pinnæ. Some of the denser specimens also resemble somewhat *A. lanceolatum* of Europe.

2. Pellæa Ornithopus, Hooker.—Mr. Thomas Moore has lately in the *Gardeners' Chronicle* described a form of this species under the name of *Platyloma brachypterum*. This form is described as being only bi-pinnate, very strict and dense in habit, and with longer pinnules than are usually seen in *P. Ornithopus*. The very large series of specimens sent me in 1869 by Mr. Bolander, and lately again, to be distributed in Kellogg and Harford's collection (as No. 1169), enable me to show a complete graduation into the ordinary form of P. Ornithopus, of which, however, this plant may be recognized as a variety under Mr. Moore's name, *brachypterum*.

3. Pellæa Wrightiana, Hooker.—Mr. Baker has, I think, very properly united this with *P.longimucronata*, but one of Sir. Wm. Hooker's names must be kept for the species, for there is a *Pellœa mucronata* of Fée, a simple pinnate species from Mexico, which antedates the same name as applied to the New Mexican species in the Botany of the Mexican Boundary. Mr. T. S. Brandegee, of Canon City, Colorado, has recently sent excellent specimens of *P. Wrightiana.*

4. Notholæna Newberryi, n. sp.—Stems tufted, 3-5 inches long, slender, nearly black, when young whitish-tomentose, at length nearly smooth; fronds as long as the stipes, lanceolate-oblong, covered with a dense whitish tomentum of slender entangled hairs, most densely beneath, tri-quadripinnate; ultimate pinnules roundish-obovate, very closely placed, $\frac{1}{3}$-$\frac{1}{2}$ a line broad, entire or slightly crenate; sporangia rather large, at length apparent in the mass of tomentum.—San Diego, California, *Dr. Newberry*, *Prof. Wood.* Abundant in the Temescal range, Southern Cal., *Prof Brewer.* This Fern I have had for many years, and at first supposed it to be *Cheilanthes tomentosa*, then a whiter form of *Ch. Eatoni*, and then a new species of Cheilanthes. On careful examination, however, I find no trace of involucre, even on fruiting specimens. The plant very much resembles small specimens of the Ferns just referred to, but is whiter, and much more heavily covered with tomentum. In Notholæna it comes nearest to *N. mollis*, Kze, from South America, but is much more delicate, and differs in many other important respects. D. C. EATON.

NEW HAVEN, Feb. 22, 1873.

18. Mistletoe.—I was interested in Mr. Hall's article on the mistletoe. The American species of this plant, *Phoradendron flavescens*, grows also on apple-trees. I have not met with it north of New Jersey, and have seen it there only on the *Nyssa multiflora.* But in Bourbon County, Kentucky, I have seen it on the oak (*Q. macrocarpon*) *Gleditschia*, *Æsculus glabra*, and the apple, also on *Robinia.* I have been taught that its place was on the oak; again, on ancient pines; imagine then my surprise at this abnormal conduct! O. R. WILLIS.

19. Apocynum androsæmifolium.—This plant grows in great abundance, in my neighborhood, in neglected fence corners, and upon the edges of copses. It flowers every year profusely, but I have never yet seen it in fruit, nor has my gardener, an intelligent and competent botanist, who has carefully searched for a fruiting specimen for twenty years. A. C. GREENE.

FROSTBURG, Md.

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

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20. Oaks and Mistletoe.—The interesting note of our fellow-member, Mr. Hall, upon the present rarity of mistletoe on the English oaks, and its frequent occurrence upon the English apple trees, leads me to mention here the very frequent, nay, almost constant occurrence of huge bunches of *Phoradendron* (the American representative of mistletoe) upon the oaks of California. Throughout the plain and lower hills of that State, scattered oaks, of several species, are the most abundant tree, and their graceful forms, as well as their vivid green, seen in contrast with the usual arid vegetation of August, give a peculiar and needed charm to the summer landscape. It was my privilege to journey a few weeks last summer in that State with our lamented friend and master, Dr. Torrey, and his acute and practised eye was quick to notice that, especially in the Napa and Sonoma valleys, nearly every large oak that we passed bore bunches of mistletoe, many of them of great size and age. The oaks on which it was observed were, *Quercus Hindsii*, Benth ; *Q. Kelloggii*, Newb. ; *Q. chrysolepis*, Liebm. ; and probably others. Whether it is there confined to the genus *Quercus* I cannot say. It was, probably, one of the varieties of *Phorodendron flavescens* (Pursh.) Nutt., but our hurried stage-coach travel did not permit us to secure specimens. East of the Mississippi the *Phorodendron* is known to cultivate the society of a considerable variety of trees.

JOHN H. REDFIELD.

21. Orchids.—With regard to the list of orchids in the January (1873) BULLETIN, a note or two may be worth while. *Liparis liliifolia*, Rich., I have found in the woods near Greenwood Cemetery; perhaps twenty plants. *Liparis Loeselii*, Rich., I have found in the very midst of the bog on Weehawken heights, growing right in the midst of the wet, black mud, and almost in the water itself. It was healthy and large, and had the remains of two years' previous growth. I have also found it on Staten Island, in the gravelly bank of a railroad cutting; very vigorous also, and having the remains of two years' growth. I found it also on a gravelly bank by the roadside in Tarrytown, very vigorous and with the remains of one year's previous growth. I have several times found them in the Western part of the State, the *L. liliifolia* always in the woods, but the *L. Loeselii* always on the side of a gravelly or sandy bank, about half way up on the rough and uncovered surface. Only in the case of the Weehawken bog have I found it in a wet place. I cannot believe that the water is the most natural place for either species. *Cypripedium acaule*, Ait., besides the localities mentioned in the BULLETIN, I have seen frequently on Staten Island, and occasionally up through Westchester County and in Connecticut. *C. pubescens*, Wild., I have also seen occasionally in Westchester County and in Connecticut; but I have never, in this region, seen a *C. parviflorum*, Salisb. ; nor in this region have I seen any such places as that seems to love so well in Central New York. I do not remember ever to have been botanizing in the Jersey Pines, in the proper season, without running across *Habenaria tridentata*, Hook., in the swamps; nor in the bogs of Westchester County without seeing *H. lacera*, R. Br. *H.*

orbiculata, Torr., I do not remember to have seen more than once in this region, and that extra-limital, near Cornwall, on the Hudson. *H. Hookeri* seems to be not infrequent. It may have escaped general notice that *H. orbiculata* dries white, while *H. Hookeri* turns quite black in drying. *H. ciliaris*, R. Br., I have seen in the Jersey marshes, and also down in the Pines.

The difference of distribution of the orchids in our regions from that in Central and Western New York is worth noticing. *Orchis spectabilis*, L., in Cayuga, Monroe, and Oneida Counties, and once in Onondaga County, I have seen in beds, hundreds of plants together; here not very commonly, one or two plants alone. *Habenaria virescens*, Spreng., along the outlets of the Western New York lakes, when found at all, is found in large beds, sometimes extending several rods along the shore in the underbrush. *H. Hookeri*, nowhere there uncommon, I have seen fairly covering a wooded hillside with its large leaves; thousands of plants being together near the edge of Skeneateles Lake. *H. orbiculata* is frequently met with in Central New York; *H. cristata*, R. Br., and *H. ciliaris* almost or quite never; *H. blephariglottis*, Hook., not infrequently; *H. lacera*, R. Br., much less commonly than here; *H. psycodes*, Gray, in the greatest abundance in many places. *Goodyera repens*, R. Br., is there as common as *G. pubescens*, R. Br., and both in all the cold woods. *Spiranthes gracilis*, Bigelow, is there the least common form of the genus; *S. cernua*, Rich., the commonest. *Listera cordata*, R. Br., grows in all the cold bogs, almost always in company with *Corallorrhiza innata*, R. Br., while *L. convallarioides*, Hook., is never found there. *Arethusa bulbosa* is much rarer there than here. *Pogonia ophioglossoides*, Nutt., and *Calopogon pulchellus*, R. Br., strange to say, almost never occur there. I never saw either there myself, but have heard of their being found there once or twice. *Pogonia pendula*, Lindl., is quite rare, but *P. verticillata*, Nutt., quite common, and nearly always flowers finely. *Microstylis monophyllus*, Lindl., is not uncommon; nearly or quite as common as *M. ophioglossoides*, Nutt. *Aplectrum hyemale*, Nutt., is much more common there than here; and I have twice found it in a close bed covering two or three square yards. I once found two leaves with their bulbs, both starting from the same bulb of the previous year, on opposite sides; and I have found a succession of six bulb-remains, one after another, attached to the thriving bulb and leaf. *Corrallorrhiza multiflora*, Nutt., and *C. odontorrhiza* I have found in beds of nearly two hundred plants, growing under hemlocks, among the rotting remains of hemlock logs buried lightly in alluvial sand beside a stream. *C. innata* grows, as I have above intimated, in most of the cold bogs. *Cypripedium parviflorum* is common in Oneida County; rare elsewhere. *C. pubescens* and *C. spectabile*, Swartz, are abundant in proper localities. *C. acaule*, Ait., is quite rare there.

I. H. Hall.

22. Watkins Glen.—[Having been applied to for information as to the best time for a botanical visit to Watkins Glen, we wrote to Prof. A. N. Prentiss, of Cornell University, who has kindly responded as follows:]

Perhaps the last week in June would be the most satisfactory time for observing the floral character of Watkins Glen. I have myself visited the place but once, and speak of it from my acquaintance with similar localities, rather than from personal observation. The Southern extremity of all the lakes in Central New York is surrounded by hills from 400 to 800 or more feet in height, in which deep ravines have been worn by the descending streams. These ravines are characterized by a succession of waterfalls and cascades, rocky ledges and high cliffs. In places they are extremely narrow, but again widen out into broad amphitheatres. The sides are sometimes sloping and covered with a peculiarly luxuriant vegetation; at other times they rise into perpendicular walls 200 to nearly 400 feet in height. Nooks and recesses abound where the sun never shines, and where the air is cool and damp the whole summer through. In such places a few plants are found which properly belong to a more northern region. They are doubtless the lingering representatives of the flora which characterized this latitude during the later portion of the glacial epoch. Perhaps the most interesting of these plants is the pretty little *Primula Mistassinica*, Mchx., which abounds in the ravines at the head of Crooked and Cayuga Lakes, and probably occurs at Watkins. A few individuals of this species have for ages maintained a foot-hold in those glens, quite separated from their congeners, which for the most part abound from Labrador to the Rocky Mountains and northward to the Arctic circle. *Pinguicula vulgaris*, L., usually accompanies Primula. *Sisymbrium canescens*, Nutt., abounds at Watkins, there being only one other known station in the State. The floral character of the Fall Creek ravine at Ithaca, known as the Gorge, is quite as peculiar and interesting as that of the Glen at Watkins.

23. Destruction of Spruce Trees.—In the *Tribune* of April 1st, is a notice of Mr. Verplanck Colvin's Report to the New York Legislature on the Adirondack Wilderness. Mr. Colvin is reported to say: "During this day's march through the forest [in the vicinity of Cedar River] we remarked with wonder, that almost all the majestic spruce timber was either fallen and decaying or standing dead, so penetrated with dry rot and decay as to be crumbling to pieces. The same timber, only a few years since, was apparently sound and valuable. Now the lands . . . will probably not command ten cents an acre. This sudden decay of the forest is a most important matter to the owners of timber lands thereabouts, and deserves the attention of the botanist." This observation was made last August. Mr. Colvin does not state whether the decay was common to both the White and the Black Spruce, or was confined to the latter.

In 1871, Mrs. L. A. Millington, of Glens Falls, discovered that a minute Arceuthobium, a plant of the Mistletoe family, was destroying the Black Spruce in the Adirondacks and adjacent country.

Her observations on the habits of the plant including the manner of its dissemination may be found in our pages (Vol. II. Nos. 11 and 12., Vol. III. No. 12.), and notes on the subject by Drs. Gray and Parry in the *American Naturalist* for 1872. Mr. Chas. H. Peck, of Albany, also discovered the plant, but subsequently to Mrs. M., and gave an account of it in a *Report* quoted in our BULLETIN (Vol. III. No. 4.). The parasite would seem to have become unusually abundant of late years. It is very important to learn its anterior history.

24. Seasonable Hints.—Watch the various *Willows;* gather the catkins of both sorts, and mark the bushes so as to get the leaves later in the season. As the willow is diœcious, every variety should be represented by four pieces, staminate and pistillate catkins, and corresponding twigs with leaves well developed and if possible with stipules.—*Carices* are now appearing, and are much needed for the Catalogue.—Get some pollen of *Calla* (Richardia Æthiopica) and examine the contents of the pollen granules, burst or crushed in water, to see the movements of the fovillæ.

SMILACEÆ.

SMILAX, Tourn.—**S. rotundifolia**, L.; common; N. Y.: var. **quadangularis**; Staten Island, *Allen*,—**S. glauca**, Walt.; not uncommon; New Jersey, Long Island, Staten Island, &c. **S. herbacea**, L.; common; N. Y.: var. **pulverulenta**; flats east of Greenpoint, *T. F. A. & W. H. L.*

LILIACEÆ.

TRILLIUM, L.—**T. erectum**, L.; N. J. *Torr. Cat.*; near Norwood and Tappan, *Austin;* Preakness, *Fischer;* Glen Cove, *Coles;* Lawrenceville, *Ruger*, Westchester Co., *Pooley*. **T. cernuum**, L.; Closter, common, *Austin;* Preakness, *Fischer;* N. R. R. of N. J., opposite Hudson City, *Ruger;* Westchester Co., *Fischer;* Long Island, Newtown, common, *Ruger;* Glen Cove, *Coles*.—**T. erythrocarpum**, Mchx.; New Durham Swamp, *Torr. Cat.;* Long Island, *Coles*.

MEDEOLA, Gronov.—**M. Virginica**, L.; common; N. Y.

MELANTHIUM, Gronov., L.—**M. Virginicum**, L.; not uncommon in low grounds; Hackensack Flats; Staten Island; Keyport, *Brown;* Yonkers, *Pooley;* Closter, *Austin*. A variety with much broader leaves, and, I believe, otherwise different, occurs in upland woods and thickets in Orange Co., *Austin*.

VERATRUM, Tourn.—**V. viride**, Ait.; common; N. Y.

HELONIAS, L.—**H. bullata**, L.; near Freehold, Monmouth Co., N. J., *Lockwood*. Vid. Vol. II., § 38.

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CHAMÆLIRIUM, Wild.—**C. luteum,** Gray; not uncommon in New Jersey, and on Staten Island, and probably in Westchester Co., though we have no report from there or Long Island; Kingsbridge, N. Y. Island, *W. H. L.* Eminently polygamous, *Austin.*

UVULARIA, L.—**U. perfoliata**, L.; common; N. Y.—**U. sessilifolia,** L.; common; N. Y.

SMILACINA, Desf.—**S. racemosa**, Desf.; common; N. Y.—**S. stellata**, Desf.; south shore of Staten Island, *W. H. L.;* Snake Hill, N. J., *Le Roy;* near Canarsie, *Ruger;* Zinc mines, Sussex Co., N. J., Austin. It is interesting to find this inland plant clinging to the moist thickets by the sea shore. Torrey's Catalogue reports it in wet meadows, but in the State Flora it is said not to grow below the Highlands. The wet meadows perhaps were in New Jersey, but it is not now reported from there, excepting Snake Hill.—**S. trifolia,** Desf.; Orange Co., *Austin;* Westchester Co.? *Le Roy, Pooley.*—**S. bifolia,** Ker.; most common; N. Y.

POLYGONATUM, Tourn.—**P. biflorum,** Ell.; common; N. Y.—**P. giganteum,** Dietrich; "On the Island of New York," *Le Conte in Torr. Cat.; Le Roy;* Parsmus, Bergen Co., and near Troy, Morris Co., N. J. On the Palisades I have found *S. biflora* almost like this. *Austin.*

ASPARAGUS, L.—**A. officinalis,** L.; salt meadows &c., not uncommon.

§ **Asplenium ebnoides**, R. R. Scott.—A new locality for this very rare species has been found by Miss Julia S. Tutwiler near Havana, in Central Alabama. We infer from her communication that the number of individuals is greater than where originally found on the Schuylkill. As every fact connected with this singular and disputed form will interest botanists in general and fernists in particular, we extract freely from Miss Tutwiler's letter, which is beside brimful of botanical spirit:

"I found it in a little magic spot, a Fairy-glen, about five miles from my home. You must know that we live in Central Alabama, on the Tertiary, in a hilly poor country of sand and red clay, with long red gullies washed everywhere into the hills, but no rocks except pudding-stones. One day I happened to hear of beautiful mossy crags and cliffs some miles away, and went to seek them. To my delight and surprise, I found a little narrow glen, which seemed to have been picked up somewhere in the Blue Ridge and carried bodily through the air to be dropped down in this odd place. The sides were precipitous crags of sandstone covered with beautiful ferns, mosses and vines; a rapid brook rushed through the bottom of the glen in a thousand little wimples. There seemed a separate soil and climate to this little freak of nature. I found there five ferns which I had never seen in any other spot around us; and the real mountain saxifrage, which I had not met since I had seen it in the Catskills. The ferns were: a Polypodium [Phegopteris?]; Asplenium ebeneum and Trichomanes; and A. ebenoides; Cheilanthes vestita; and the real Walking-fern [Camptosorus], which is not, I think, put down in the books for so low a latitude. There may be many other plants there not found elsewhere around us. I could only go occasionally, at long intervals, and, therefore, no doubt, missed finding many. I shall never forget the delight with which I recognized the Walking-fern. I had never seen it before except in books, and had hoped to obtain a specimen by exchange."

According to the Manual, a single plant of this fern was found growing with Camptosorus and Asplenium ebeneum on limestone cliffs on the Schuylkill, near Philadelphia, by R. R. Scott. This was in 1861. Prof. Eaton informs us that Mr. Frederic Bourquin obtained four more plants in the same place, Oct. 4, 1867. It is to be noticed that Camptosorus and Aspenium ebeneum likewise grow in Miss Tutwiler's locality. In the same passage of the Manual, Prof. Eaton mentions the Rev. M. G. Berkeley's opinion that it is a hybrid between the two mentioned ferns. Whether this is so, it is to be hoped that Prof. Eaton will be enabled to decide by means of a fuller series of specimens from Alabama. Mr. Berkeley found the spores in the single imperfect specimen communicated to him more or less abortive, and draws an argument from that circumstance. As Camptosorus and Asplenium ebeneum are frequently found together, if they hybridize, it might be expected that more frequent examples would occur. On the other hand, the peculiarity of the Alabama locality, like that of Scolopendrium in Western New York, would suggest a relic of an earlier geological age.

§ **26. Viola Cucculata,** Ait.—We picked up in the woods on Bergen Point, a day or two since, a monstrous form of this most common violet. Of the two specimens gathered, one had four petals, and the other five, but each had two spurs. The front petal of the one with five was without a spur, but in both cases it was the base of the petals next to the anterior one, or where it should have been, that was spurred, each spur containing the crested filaments of two stamens. As the two specimens gathered were some distance apart, we concluded that the monstrosity was not rare. The shades of evening put an end to our search for more. We recommend others, however, to keep the subject in mind at this season when violets abound. It seems worthy of study. We may say, while on the subject, that the pollen tubes in the Violaceæ may easily be found in the neck of the style.

§ 27. New or Little-known Ferns from the United States.—No. 2.

5. Notholæna Cretacea, Liebmann.—"Rootstock oblique, short, cæspitose, covered with rigid lanceolate scales having a lacerate membranous margin; fronds coriaceous, covered above sparingly, beneath most densely, with a subsulphureous waxy powder; stalk 1–2 inches long, ebeneous, shining; lamina 2–3 inches long, quinquangular-cordate, twice—at the base thrice—pinnatifid; primary segments opposite, spreading, lowest ones short stalked, unequally deltoid-ovate, upper ones sessile, oblong, obtuse, pinnately parted; secondary segments oblong, obtuse, lower ones pinnately parted, those on the inferior side enlarged, ovate-lanceolate; ultimate divisions oblong, obtuse, slightly crenulate; veins immersed; sori of a few blackish sporangia forming an intramarginal line, immersed in the waxy mass; margin [of the segments] very narrow, slightly scarious."—*Mettenius, Cheilanthes, p.* 21. This species is united with *N. candida* by Hooker, though with much hesitation, and by Mr. Baker both species are referred to *N. sulphurea*, J. Smith, a name founded on the old *Pteris sulphurea,* Cavanilles. What name this fern will eventually bear I cannot now determine. The name of *N. Borrigiana* was doubtfully used for it in the first edition of Mann's catalogue, referring to *Cheilanthes Borrigiana*, Reichenbach, but I now think the description of *N. cretacea*, above translated from Dr. Mettenius, comes nearer to it. I have seen no authentic specimens of either *N. cretacea*, *Liebm.*, *Pteris sulphurea*, Cav. *P. lutea*, or *P. aurantiaca*, Cav. Should it prove to be either of these last, one of Cavanilles' specific names must be adopted. It is assuredly distinct from *N. candida*, Hook., a name based on *Cheilanthes candida*, Martens and Galeotti. *N. candida* is Mr. Wright's New Mexican 820 and 2,124, and *N. cretacea* his 821. Neither species has been sent from California, but the Californian *Gymnogramme triangularis*, which has a considerable resemblance to the present fern, is sometimes mistaken for it, and *vice versa*.

6. Aspidium unitum, *Mettenius*, in Annales Mus. Lugd.-Batavorum, I., p. 230, *var.* GLABRUM, *Mett. l.c.*, has just been found near Enterprise, Florida, by Mr. C. E. Faxon, of Cambridge, Mass. The fronds grow from a very long and slender, nearly naked, black, creeping rhizoma, are one or two feet high, and pinnate with many pairs of narrow linear pinnæ serrately lobed about half-way to the midrib. The lowest pair of veinlets unite near the midrib, and send out a solitary veinlet to the sinus, where also the second pair of veinlets reach the margin. The fruit-dots are very small, and are placed close to the margin, forming an almost continuous border. The texture is somewhat rigid. and the plant is not closely related to any other species of the genus yet found in the United States, its nearest ally being *A. patens.* It is a well-known fern of the West Indies, and is No. 1,100 of Mr. Wright's Cuban collection.

⁂ Mr. John Robinson, of Salem, Mass., has just issued a new Check-list of the Ferns of the United States and British America, both in pamphlet form, printed on alternate pages, for convenience in cutting out labels, and on thin folio post, a single sheet, for marking desiderata, etc. The list, which is the best hitherto published, preserves the numbers used in Mann's Catalogue, and gives one hundred and twenty-six species and twelve varieties. Our well-known *Aspidium acrostichoides*, so available for winter decorations, is happily *christened* CHRISTMAS FERN—a name which I certainly hope will be generally adopted. D. C. EATON.

§ 28. Botanical Morphology.—In the *American Naturalist* for May, Prof. T. D. Biscoe contributes a study of the winter fronds of Duckweed (Spirodela), which is full of instruction for the minute dissections and investigations which lie at the very foundation of botanical science. Many causes have led botanists in America to give their attention more particularly to the systematic part of the science; but this field has been so well worked, and is so full of workers, that there is little room for any new comer to add much to our knowledge in this department, while the other divisions of the science offer unlimited range for delightful and profitable investigation. Whether taking his healthful walk in the country after rarer plants, or confined to the weeds of his dooryard, the student of vegetable biology can always find subjects of interest. If a few more of our able investigators would disclose to outsiders their methods of research, so as to set the current of study in that direction, they would be doing good service. We heartily thank Prof. Biscoe for his example of honestly thorough work in a somewhat neglected field.

§ 29. **Publications.**—The *Naturalist* for May is unusually well supplied with botanical matter. Prof. Biscoe's article on Duckweed we have elsewhere noticed. Prof. Watson describes some new plants of Arizona.—*Silliman's Journal* contains, with other notes of interest, obituary notices of Curtis, Mohl, and others. A biographical sketch of Dr. Torrey is promised for the June number.—*Archives of Science*, Vol. I., No. 6, continues the list of flowering plants of Vermont, by Prof. Perkins, and of the Cryptogams, by Charles C. Frost.—The *Popular Science Monthly* for May has an interesting article on the freezing of plants and animals, from the German of Fr. Mohr.—In the *Transactions of the Wisconsin Academy*, 1870–72, Dr. Lapham discusses the classification of plants in the light of Geology.

§ 30. **Motion of Fovillæ** (*Pollen contents*).—We extract the following paragraph from the note of a friend: "I was recently examining the pollen of the common Calla, so called, (*Richardia Æthiopica*). The granules are unusually large, and are admirable for study in several respects. They show, with unusual distinctness, the double character of the coat. The fovillæ shrink away to the centre, leaving the margin all around the granule transparent. I had placed some of the pollen upon the slide with a drop of water. Soon I found some of the granules burst, and the contents poured out like meal from a sack. But in a moment it was 'all alive.' Each particle of the fovillæ went whirling around and twisting away, now on its own hook, now bowing to its neighbor, and aggregating with others similar. The whole field was covered with a cloud of busy particles, moving about with a sort of infusorial motion, but much slower. This lasted for an hour or two. If the granules do not burst by the absorption of water, they may be crushed in the compressorium, or simply with a knife-blade or similar instrument."

At the regular meeting of the Torrey Botanical Club held April 29th, 1873, the following resolutions were presented by the committee appointed for that purpose, and unanimously adopted:

WHEREAS: It has pleased Divine Providence to remove from us by death our honored head, Dr. JOHN TORREY,

Resolved: That while deeply grieving the common loss of all the promoters of his favorite science, we mourn him who in a peculiar manner was our founder, father and friend.

Resolved: That we cherish and prize his memory, inseparably interwoven not only with American Botany—in which he was co-laborer with the earlier pioneers, teacher and helper of nearly all the later investigators, and a leader in the original researches, public and private, of his State and country—but with the growth and coming to maturity of Botanical Science itself. We remember him with affectionate veneration as the occupant of chairs of high esteem and usefulness in several of our institutions of learning; as the incumbent from its establishment of an office of great personal trust under the General Government, in another exacting department of science; as a diligent, honest and humble student of nature; and, above all, as adorned with rare Christian excellence and grace, growing in knowledge and virtue fuller and riper to the last; and departing in a good old age, full of years and content.

Resolved: That we recognize it as our duty and privilege to imitate his excellent and alluring example, to use our utmost effort to promote a living interest in, and provide for the continuance and progress of local and general botanical investigation.

Resolved: That these resolutions be entered upon the minutes of the Club, and that a copy thereof be presented to the family of the deceased.

GEO. THURBER,
WM. H. LEGGETT, } *Committee.*
ISAAC H. HALL,

§ 31 - Fertilization of Asarum Canadense. —In the *Hortus Cliffortianus*, one of the earliest works of Linnæus, published in 1737, occurs the following passage in reference to *Asarum Europæum*: "Stamina ante pubescentiam reflexa a pistillo procumbunt, at instante copula eriguntur prius mares alterni sex, uxori communi approximantur, genitalem farinam efflant; absoluta eorum venere et alterni reliqui sex mariti arcte feminam erecti comprimunt et suum pulverem effundunt."

I have found no reference to this curious statement in any later works, and have sought for any record of similar behaviour in our own *Asarum Canadense.* A small patch of the latter plant, established in my garden, has enabled me to watch the progress of the anthesis of its flowers. As soon as the calyx lobes open, the twelve stamens are seen in beautiful symmetry, bent backwards and downwards from the stigma. In this position they all remain for a period varying from 12 to 36 hours, when one or more of the alternate anthers bursts its turgid cells, while its curved filament begins to straighten, and slowly the stamen arises until the flukeshaped anther reaches its place in the *sinus* between the lobes of the compound stigma. This movement is soon followed by that of the remaining alternate stamens until all the six recesses of the stigma are occupied. The rise of the stamens is not rapid or simultaneous, nor does any particular order seem to prevail as regards the individual stamens of this set. The interval between the erection of the first and last of the six seems to vary from 8 to 30 hours. In nearly every instance, the anther cells burst as soon as, or before the upward movement begins.

The last stamen of the first set of six now having arisen, an interval elapses varying from ten to nineteen hours, when the remaining alternate stamens begin in like manner to open and slowly arise in succession, and the anthers of these come to rest in contact with the projecting lobes of the stigma. The stamens of this series are slightly shorter than the others, and have sometimes been called the external ones. The interval of time between the first and last of this series is usually not more than twelve hours. The stamens, having now all reached their new position, present a view not less symmetrical than their first appearance, the projecting horns, or filaments, produced above the anthers being all bent forwards towards the centre of the stigma.

Under the ideas which formerly prevailed upon the subject of self-fertilization of flowers, the statement of Linnæus, though needing qualification, is so illustrative that Darwin ought certainly to have given it poetic diction in the "Loves of the Plants." But when we look for special adaptation of parts for the office assigned by Linnæus, we find the anthers of both series of stamens *not introrse*, but extrorse—that is, opening outwards and downwards, directly *from* the stigma. Moreover, in almost all cases, the bursting of the cell and the protrusion of the pollen is fully completed before the stamen reaches its erect position. By the time, however, that the anthers of the first series have reached their places *between* the lobes of the stigma, they have become so swollen and so covered with pollen that a few grains almost inevitably come into contact with the stigmatic surfaces. But while slowly ascending to this position, and after reaching it, they certainly are so placed that the visit of an insect could hardly fail to carry away much more of the pollen than can reach the stigma by anther contact. Yet, the flower of this plant is so near the ground, and so often hidden, in fact, by dead leaves, that flying insects could hardly reach it; nor have I detected any visits from these, or from insects of other habits. But I trust that what I have here recorded will lead to further observation and research on this and kindred points. JOHN H. REDFIELD.

PHILADELPHIA, *May* 22, 1873.

§ 32. **Party-colored Iris.**—I saw, yesterday, a curious specimen of the ordinary Iris of cultivation (*Iris Germanica*). The colors —blue and white—were exactly divided upon it. The owner said that his white flowers grew on one side of his garden and the blue ones on the other, and they had never crossed before. Is not this the result of insect agency? You will notice that each petal or sepal that is colored is divided into two tints by the mid-rib.

PROVIDENCE, *June* 5th. W. W. BAILEY.

§ **33. Apocynum—No. 5**.—I hope some of those who meet with *A. androsæmifolium* this summer will make a microscopical examination of the buds to determine, if possible, the origin of the glands. Schleiden, in his *Botanik*, 1849, has already pointed out the true stigmatic portion of the style, of which he gives a drawing, and also of the glands, *p.* 494. He does not, however, seem to recognize the dual nature of the latter. In his view the stamen is attached to the style by a secretion of viscine from a tuft of hairs at the top of the filament, and, if I rightly apprehend him, the mainly diaphragm is ~~but~~ the extension of the epidermis of the upper part of the style, upon which epidermis the gland lies, so that he recognizes the gland as distinct from the styles, and, indeed, supposes that, in Asclepiadaceæ, the glands originally pertained to the anthers, *ibid.* It will thus be seen that his observations in part anticipate my own. I did not meet with his notice of this plant till after I had published my notes on the same subject.

Schleiden also recognizes that the flower cannot fertilize itself, though he seems not to have known the *modus operandi* Dr. Darwin, in the Botanic Garden, a work which might almost be called a necessary introduction to the writings of his distinguished grandson, gives an outside report of the manner in which the anthers entrap flies, *Vol. II., p.* 241, as does also Rafinesque in his Medical Botany. I understand that Mr. C. F. Wheeler of Hubbardston, Mich., was fortunate enough last summer frequently to find insects, including some *Lepidoptera*, entrapped by this plant. W. H. L.

§ **34. New Localities.**—Last spring we found the Trailing Arbutus (**Epigæa repens**) in the wood bordering the southern shore of the mouth of the Croton River, being the first specimens found in this region. DR. C. J. FISHER.

SING SING.

Some years ago Prof. Thurber found **Fedia olitoria**, Vahl, at St. Ronan's Well, near Flushing.—Mr. Miller discovered last year at Wading River, in a barley field, a patch of *Matricaria inodora*, L.—I have found this season **Ranunculus multifidus**, Pursh with **Amianthium**, west of Hackensack, and **Cynthia Virginica**, Don, near Huguenot Station on the Staten Island R. R. W. H. L.

LILIUM, L.—**L. Philadelphicum**, L.; N. Y.; Closter, common; *Austin;* Westchester Co.; Bergen Point; Chatham, N. J.; —L. **Canadense**, L.; Hoboken, *Torr. Cat.;* Closter, common, *Austin;* Chatham, N. J.; Glen Cove, *Coles;* Westchester Co. —**L. superbum**, L.; Glen Cove, *Coles;* Astoria; Staten Island; Carlstadt; New Durham, and Orange Co. &c, not near Closter, *Austin.*

ERYTHRONIUM, L.—**E. Americanm** Smith; common; N. Y. u

ORNITHOGALUM, Tourn.—**O. umbellatum**, L.; Striker's Bay, *Ruger;* Inwood, *Le Roy;* Closter and Tappan, *Austin;* Yonkers, *Pooley;* abundant on Long Island, in the neighborhood of Newtown, Flatbush, &c., and on Staten Island.

ALLIUM, L.—**A. tricoccum**, Ait.; Closter, common, *Austin;* and Woodside Bowery Bay &c., *Ruger.*—**A. vineale**, L.; common; N. Y.—**A. Canadense**, Kalm; "In fields and meadows." *Torr. Cat.*; meadows, woods! and rocks!!; along the Hackensack in woods, near Tappan in meadows, and along the edge of the Palisades, *Austin;* Passaic Falls, *W. H. L.;* Van Vorst Heights, *Ruger;* Bergen Point.

MUSCARI, Tourn.—**M. botryoides**, Mill.; old places, N. Y. Island, *W. H. L.; Le Roy.*

HEMEROCALLIS, L.—**H. fulva**, L.; not uncommon escape; Manhattanville, Maspeth, *Ruger;* Staten Island, Tappan, N. J., Westchester Co., &c.; Closter, *Austin.*

***AMIANTHIUM**, Gray.—**A. muscætoxicum**, Gray; This plant, not hitherto reported from our vicinity, has been found by Mr. G. C. Woolson, and also Mr. Leggett, in abundance near Rochelle Station, on the Midland R. R., a short distance beyond Hackensack. In *Gray's Manual* it comes next after *Veratrum.*

JUNCACEÆ.

LUZULA, DC.—**L. pilosa**, Willd.; Pascack, N. J., *Austin.*—**L. campestris** DC.; common; New York.

JUNCUS, L.—**J. effusus**, L; common; N. Y.—**J. Rœmerianus**, Scheele; Coney Island.—**J. trifidus**, L.; Sands Point, Ulster Co., N. Y., *Austin*, [extra-limital].—**J marginatus**, Rostkovius; common; N. Y.: Var. **paucicapitatus**, Staten Island: Var. **biflorus**, Rossville, Staten Island.—**J. bufonius**, L.; common: N. Y- **J. Gerardi**, Loisel; common on Long and Staten Islands, *State Flora*; and probably on N. Y.; Hoboken; Piermont, *Austin.* **J. tenuis**, Willd; common; N. Y.—**J. dichotomus**, Ell.;, possibly within our limits, but not reported nearer than Shamong Station, D. & R. R. R. —**J. Greenii**, Oakes and Tuckermann; Long Island probably, *State Flora;* Staten Island, *W. H. L.* [Unless my label has got displaced, I gathered this species many years since in the neighborhood of Racket Lake, *W. H. L.*]—**J. pelocarpus**, E. Meyer; Long Island (*J. Conradi*, Tuck). *State Flora;* Red Bank, N. J., *W. H. L.:* Var. **subtilis**, L., Lake Hopatcong, N. J., *Porter;* vid. *Bulletin*, Vol. XII., § 67.—**J. articulatus**, L.; Staten Island, *W. H. L*, and, no doubt, elsewhere.—**J. militaris**, Bigel.; Suffolk Co., *Allen.*—**J. acuminatus**, Michx., Bergen Point; Astoria; Jamaica; probably quite common; Borders of salt marshes, *Torr. Cat.:* Var. **legitimus**, common.—**J. nodosus**, L.; "in swamps." *Torr. Cat.*—**J. scirpoides**, Lam.; *Austin, Le Roy, Torr. Cat.:* Var. **macrostemon**; *Torr. Cat.;* Staten Island, *Austin;* Tottenville, *W. H. L.*—**J. canadensis**, J. Gay; common: Var. **longicaudatus**; common: Var. **subcaudatus**; Red Bank, N. J., *W, H. L.*

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PONTEDERIACEÆ.

PONTEDERIA, L.—**P. cordata**, L.; common; N. Y.: Var. **angustifolia**; Peach Pond, North Salem, Westchester Co., *Mead.*

HETERANTHERA, Ruiz and Pav.—**H. reniformis**, Ruiz and Pav.; S. New York, *Gray's Manual;* common along the Hackensack, *Austin;* and Passaic, *W. H. L.;* Chatham, N. J., *W. H. L.*

SCHOLLERA, Schreber.—S. graminea, Willd.; Whippany Creek, near Morristown, *Torr. Cat.;* common along the Hackensack. *Austin*; Croton River, *Mead.*

COMMELYNACEÆ.

COMMELYNA, Dill.—**C. Virginica**, L; Inwood, *W. W Denslow;* Var. **angustifolia**; swamps two miles from Flushing, *Mr. P. Dudgeon, State Flora.*

XYRIDACEÆ.

XYRIS, L.—**X. flexuosa**, Muhl., Chapm.; Locust Avenue, Centreville, L. I., *Ruger;* Glen Cove, *Coles;* Ridgefield, Ct., *Mead;* Closter, common, *Austin;* Tottenville, Staten Island, *W. H. L.* A curious little *Xyris*, probably the variety *pusilla*, was found this summer on the borders of a pond in the southern part of Hamilton Co.—**X. Caroliniana**, Walt.; Suffolk Co., *Miller;* near Jamaica Pond, *Ruger;* border of pond in Haverstraw Mts., near Sandfield, *Austin.*

ERIOCAULONACEÆ.

ERIOCAULON, L.—**E. decangulare**, L.; very common about Ferrago, N. J., in streams and ponds, *Austin.*—**E. gnaphalodes**, Mchx.; common in same locality as the preceding species, *Austin.* *Mr. Merriam* finds these two species at Manchester, and they may attain our limits.—**E. septangulare**, Withering; common.

Organization of the Club.—The final organization of the Club—delayed first by the fraud in the original charter, and subsequently by the illness and death of our loved and revered chief—was finally completed on the 29th of April last, by the election of the following officers:

President:...............George Thurber.
Vice-President:..........T. F. Allen.
Treasurer:...............J. J. Crooke.
Corresponding Secretary:..James Hogg.
Recording Secretary:.....P. V. LeRoy.
Editor:..................Wm. H. Leggett.
Curator:.................P. V. LeRoy.
Executive Committee:....William Bower, I. H. Hall, James S. Merriam, James Hogg, G. M. Wilber.
Finance Committee:......James S. Merriam, F. J. Bumsted, Abraham Halsey.
Herbarium Committee:....P. V. LeRoy, M. Ruger, D. C. Eaton.

The Club holds its meetings at the Herbarium in Columbia College in the evening of the last Tuesday of every month, July and August excepted, and all botanists, either residing in or visiting the city, are invited to attend; or, if they cannot be present at that time, to call on the President of the Club at 245, Broadway, or on the Secretary at the Herbarium.

One leading purpose in securing a charter and organizing under it was to enable the Club legally to hold such funds as might from time to time be contributed to further its efficiency.

There is present occasion for such assistance in establishing a fund of about three thousand dollars for the permanent endowment of the Bulletin. This is the only periodical in the country devoted to this attractive and important department of science. It has now been published for more than three years, not, we trust, unapproved by the botanical community. If secured an existence, in the hands of the able men who will more and more resort to the vast and precious herbarium of Columbia College, it is hoped that it may become of lasting service to the science. With this expectation, we claim for it a share in the liberality of our countrymen.

On assuming the chair, PRESIDENT THURBER made the following

INAUGURAL ADDRESS.

GENTLEMEN OF THE TORREY BOTANICAL CLUB,

In entering upon the duties of presiding officer, the first assuming that office since the Club was incorporated, it would seem appropriate for me to give a sketch of the past history of our association. When I look for materials I find but few. We have no record of the date of the beginning of the Club* and its growth has been so gradual and its career so uneventful that there is but a brief story to tell.

The few botanists of the city, knowing that they would always be welcome, were accustomed to visit these rooms from time to time, and it sometimes occurred that without any pre-arrangement several happened in on the same evening. At length it was proposed to have a regular evening for reunion in order not only that we might meet the one around whom we all gathered, but that we might have the pleasure of seeing one another at stated times. If I am not in error this suggestion came from Dr. T. F. Allen, whose proposition was readily seconded by others. Our beginning was such a gradual accretion that those of us who were among the original members can hardly tell how it came to be called even a "Club." We came and went, sometimes two and sometimes a dozen, but there was always an informal social gathering.

Early in the informal existence of the Club it was proposed to make a catalogue of the plants of New York and its vicinity. In 1817 Dr. John Torrey presented to the New York Lyceum of Natural History "A Catalogue of the Plants growing spontaneously within Thirty Miles of the City of New York," and it was thought that a catalogue embracing the same territory would be useful to botanists, and show interesting changes in our local Flora, in the obliteration of some species and the introduction of others.

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* Not later than 1865.—EDS.

The members of the Club, if that which was hardly a body can be said to have members, entered into the work with zeal, and having a common object to labor for, the association assumed a stability that it did not before possess, and increased in numbers. Those at work upon the new catalogue found that nearly a half century had passed since the completion of the first catalogue, and it was proposed that the semi-centennial anniversary of the presentation of the catalogue by Dr. Torrey to the Lyceum should be marked by a festival. Invitations were extended to the leading botanists of the country, many of whom promised to be present, and those who could not accept sent letters full of kindness to him who was the recipient of the intended honor. On the evening of December 20th, 1867, which was marked by one of the most furious of snow-storms, there assembled at the Astor House the members of the Club and a goodly number of invited guests.

The Club had then no officers, and by some process which has ever since remained a mystery, the one who now speaks to you presided at the table and made an address. This address gave an account of the Catalogue of 1817 and an enumeration of the subsequent botanical works of its author. The recipient of the honor made a reply full of modesty and feeling, speeches were made by most of those present, and letters were read from those who were unable to attend.

I have thus alluded to this occasion, because it was the first public demonstration on the part of the Club, and one which, as the proceedings of the evening were published in the American Naturalist, first made its existence generally known.

As materials for the new catalogue accumulated and new helpers came into the field, it became necessary to have a medium through which the co-workers could communicate, and it was proposed to established a monthly Bulletin. The first number of the Bulletin appeared in January 1871, and it has since been continued with commendable regularity. Primarily devoted to matters relating to the catalogue, it has also given many botanical items of general interest. The Bulletin is an unpretending sheet of only four pages, but when we compare its contents with journals devoted to scientific specialties, at home or abroad, we have reason for a just pride in the value of its contents, as well as in their variety and conciseness.

About the time the Bulletin was proposed, it was thought best the Club should adopt a distinctive name. That of "Torrey Botanical Club" seemed the most fitting. In those days we seldom put matters to vote; we "took the sense of the meeting." Soon after this we made a step towards organization, so far as to appoint Dr. John Torrey President, P. V. LeRoy Secretary, and William H. Leggett Editor. But, as we had been in the habit of conversing in small knots, without any concert of action, it was rather difficult to abandon the custom, and even after we had adopted this partial organization our meetings were not models of parliamentary formality.

As the Club acquired new members and grew in importance, it was decided that we should become a regularly organized body under a charter, that we might enjoy the privilege of "sueing and being sued."

A charter was passed on April 21st, 1871, but was not adopted. It is an interesting illustration of the manner in which the lowest form of politics pervaded legislative action, that among the incorporators of the Club there were introduced the names of two low "Ring" politicians. The charter allowed the Club to hold property to the amount of $50,000 and there was just a shadow of a chance that at some time something could be made, and the names of two of "the ring" were interpolated among those of gentlemen and botanists. Upon inquiring, it was found that it was the custom in granting charters to put in the name of some members of the ring that they might be on hand in case any thing should "turn up."

Of course the members of the Club could not be associated, even technically, with disreputable persons forced upon them in this unfair manner, and they did not adopt the charter until the names of these objectionable individuals were removed, by an amendment passed April 29th, 1872. The Charter was adopted by the Club January 7th, 1873, and a constitution on the 28th of the same month.

Nothing remained for the full organization of the Club but to pass the necessary by-laws and elect the prescribed officers. Before the first election could be held, he whom we should have delighted to honor by chosing him as our president was taken from us. Our head, our beloved friend, Dr. John Torrey, passed from this life on the 10th of March last.

This simple statement suggests to each one of us a loss that I cannot adequately express. Yet I feel that at this time I should place upon the records of the association certain data which, though so familiar to us as to need no telling, should be preserved for those who will succeed us. For, Gentlemen, the Club took root so gradually and its early growth was so healthy, that I feel it will have greater permanence than most associations of its kind; and it would seem that the records of the Club is of all places the most fitting for an account of the botanical labors of him whose name we have chosen.

John Torrey was born in this city on Aug. 15th, 1796. His father, originally from New England, was a Captain in the Continental army and was among those who entered the city upon its evacuation by the British forces.

Of the boyhood of Dr. Torrey we know but little; he attended the public schools and was for a year at a school in Boston. Several times during the latter years of his life I requested him to write out his reminiscences of his early days and his recollections of the early botanists. The idea seemed to please him, but so averse was he to anything that might appear like egotism, that he never carried out the suggestion. He was rarely given to talking about himself, and all that those most intimate with him know about his youth and the struggles that must have attended the beginning of his scientific career is from chance hints he dropped now and then.

When a mere boy, while upon a visit in the country (the upper part of the island was then "the country,") he saw two young men pass along the road, all travel-stained and laden with strange parcels. The unusual appearance of these young men prompted him to inquire about them, and he was told that they were "the Le Conte boy" and another whose name I have forgotten, and that they were "botanists." The young Torrey for the first time saw a botanist, and he looked upon him as a curiosity, little thinking that he himself would in time be a chief among botanists. The "Le Conte boy" afterwards became the celebrated Major Le Conte, who contributed largely to botany and other sciences.

While still a youth it was Dr. Torrey's fortune to be brought into relations with Amos Eaton, who was the great instructor in popular science of his day, and it was through his teachings ings that the young Torrey first learned the rudiments of botany.

Up to the time he became a medical student we know but little of his career. He had a marked natural talent for practical mechanics, and at one time seriously entertained the idea of becoming a machinist. This love for mechanical affairs remained with him through life, and his talent in this direction was often displayed in various useful ways. He ultimately chose the medical profession and entered the office of Dr. Wright Post, the eminent physician and surgeon of his day. At that time the practice of medicine was very different from what it is now. Then the physician not only dispensed his own medicines, but they were for the greater part prepared in his office by the students. In the preparation of chemical and pharmaceutical compounds Torrey, the student, found occupation in accordance with his tastes, and he often alluded to his experience here as of great service to him in after life.

Either during his apprenticeship, as it was then called—in our day medical students only read with their preceptors—or after he entered the college of Physicians and Surgeons, he was an interested attendant upon the botanical lectures of the eminent Dr. Hosack, at the Elgin Botanical Garden, which were given not far from the spot where we are now assembled. At that time young Torrey was an industrious collector and he often carried to Dr. Hosack the fruits of his herborizations. On one occasion Dr. Hosack was so much pleased with some rare species that he remarked before the class, "That young man has *an old head.*" Medical students then were the same as now; the generic type holds in all times and in all countries. They were not slow to take up the words of the professor, and Dr. Torrey during his student's career was the "old head" of his class.

As a medical student Dr. Torrey must have devoted much time to botany, as the catalogue already referred to was presented to the Lyceum in 1817, which was a year before he took his degree. Those who are engaged upon the present catalogue, with all the aid and materials that the advanced state of the science brings to their help, can best appreciate the immense labor that must have been required to bring the first catalogue to its remarkable completeness. Copies of the catalogue of 1817 are now very rare and difficult to procure. As we turn over its pages and read of its author's favorite localities, we find that they are now far "down town" and covered by blocks of brick and brown stone. When this catalogue was made up, Canal Street was out of town and was his station for *Draba Caroliniana.* Not only the localities but the co-workers named in the catalogue have long ago passd away. Mitchell, Nuttall, Eddy, Le Conte, Cooper, and others who contributed materials for the work, all departed before its author. William Cooper was the last of these. He was the frequent companion of Dr. Torrey's early botanical excursions, and until the last these two old men held for one another a boy-like friendship as charming as it is rare.

While yet a student of medicine, Dr. Torrey was one of the founders of the New York Lyceum of Natural History. The incorporators met to adopt their charter—if I remember correctly —in one of the rooms of the College of Physicians and Surgeons in Barclay Street. The origin of the Lyceum was marked by a more festive demonstration than attended that of our Club, for upon the adoption of the charter they adjourned to a well known public house and celebrated the event in mugs of ale, paid for by a general contribution of pennies.

During the early career of the Lyceum, Dr. Torrey was one of its most active members and contributed to its Annals many of its most important papers. For many years he was its President. The Lyceum, like other associations of its kind, was not exempt from the misfortune of party. At one annual meeting, when Dr. Torrey desired to decline a reëlection, he was induced to accept a nomination; an opposing faction elected its candidate over him. So hurt was he at what he regarded as an unfair trick that he never again went to the meetings of the Lyceum. In this mention of the Lyceum it may be well to state that by acting as its curator a young botanist from Western New York was enabled to pursue his botanical studies in New York. This young botanist is now known as Prof. Asa Gray.

After obtaining his medical degree, Dr. Torrey took an office in the city, but the attractions of botany, mineralogy, entomology and chemistry prevented him from applying himself seriously to practice. We infer from what he has said that his office was more frequently sought by young scientists than by patients. His love for scientific pursuits, joined to a dislike to witness human suffering, led him to abandon medicine at the first opportunity.

Soon after he was graduated, the expedition of Maj. Long was proposed, and Dr. Torrey was offered the position of botanist.

He was greatly tempted to accept this opportunity for botanical distinction, but he had formed ties which were strong enough to keep him at home. Dr. Baldwin was appointed in his place and upon the death of Baldwin, who was an almost hopeless invalid from the start, the duties of botanist were performed by the surgeon of the expedition, Dr. James.

In 1820, Dr. Torrey published in Silliman's Journal "A Notice of Plants collected by Capt. N. Douglas around the Great Lakes at the Head Waters of the Mississippi.

In 1823, he contributed to the Annals of the Lyceum of Natural History " Descriptions of some new or rare plants from the Rocky Mountains, collected by Dr. Edwin P. James."

The year 1824 was an eventful one to our friend. In it he published "A Flora of the Northern and Middle States, or Systematic Arrangement and Description of all the Plants heretofore discovered North of Virginia." In this year he was married to Miss Eliza Robinson Shaw, and was settled at West Point as Professor of Chemistry in the U. S. Military Academy. This Flora, the concluding pages of which were written on the morning of its author's wedding day, is now rare, a large portion of the edition having been destroyed by fire. It contains over 500 species and includes the first twelve classes of the Linnæan system. In this work the author first manifested his acuteness in diagnosis, and it is remarkable for its elaborate and minute descriptions.

In this same year, 1824, we find "Descriptions of New Grasses from the Rocky Mountains" in the Annals of the Lyceum, and a "Monograph of the North American species of Carex," of which he was joint author with Schweinitz. Schweinitz had placed the paper in Dr. Torrey's hands, to edit and supervise the printing of it, during the author's absence in Europe. When Schweinitz found how much the value of his monograph had been increased by additions and revision, he insisted that Torrey's name should appear as joint author, and that it should be quoted as Schweinitz & Torrey.

Foreseeing that the Linnæan system was to be supplanted by one founded upon a more profound knowledge of the structure of plants and broader views of their relationships, the Flora was not continued beyond its first volume, but its author, in 1826, published a Compendium which contained condensed descriptions of the plants enumerated in the first volume of the Flora and of those that would have been given in the second volume. As one of the few members of the Club whose botanical experience extends far enough back to have used this Compendium as a text book, I can bear testimony to its great superiority to all other botanical works of its time. The name "Compendium" was fitly chosen, as in copiousness, conciseness and compactness, it came as a great relief after the vagueness of other works.

In 1826, Dr. Torrey read before the Lyceum "Some Account of a Collection of Plants made during a Journey to and from the Rocky Mountains, in the Summer of 1820, by Edwin P. James, M.D., Assistant Surgeon, U. S. Army." This memoir was not published until 1828. Before its publication its author, after three years' service, left West Point to assume the chair of Chemistry and Botany in the N. Y. College of Physicians and Surgeons. This account of Dr. James's Rocky Mountain plants is of especial interest as being the first botanical publication of importance in this country in which the plants were arranged according to the Natural System. Shortly before, the Abbé Correa had arranged a list, in which the genera named in Muhlenberg's catalogue were placed according to the system of Jussieu.

In 1831, Lindley's Introduction to Botany was re-published in this country. Dr. Torrey prepared a catalogue of the North American genera, arranged according to Lindley's orders, which was published with the work and also separately in the pamphlet form.

Dr. Torrey was always fond of studying obscure and difficult orders, hence the Borraginaceæ, Chenopodiaceæ, Amarantaceæ, and Cyperaceæ had particular attractions for him. As early as 1836 he published in the Annals of the Lyceum his "Monograph of the Cyperaceæ." This contained, besides a full account of the other genera, a complete revision of the genus Carex. No publication by our friend shows better work than this, and it was a most valuable contribution to North American botany, as it contained an elaboration of the species collected by Drummond, Richardson, Burke, and other British collectors, whose specimens were loaned by Sir William Hooker.

The Geological Survey of the State of New York was organized in 1836, and Dr. Torrey was appointed as its Botanist. His report was published, after many delays and discouragements, in 1843. It forms two enormous 4to volumes, filled with detailed descriptions of all the plants known to belong to the State, and is illustrated with 161 plates. When we consider that this work was produced amid the labors of his professorship at the Medical College, to which had been added those of the Chair of Chemistry at Princeton, we must wonder at the untiring industry of its author. Whoever was at that time in charge of the survey was economical unto meanness, for Dr. Torrey had to buy his own copy of his own work. During the printing of the work an assistant of the author carefully preserved the revise proofs and put them away in regular order. When the Medical College was moved from Crosby street, this roll of proof sheets was found, and Dr. Torrey gave them to me. Fortunately every page was in its place, and now, handsomely bound, it is one of the prized works in my library, and is unique as being the only copy in existence "presented by the author."

The first number of the "Flora of North America, by John Torrey and Asa Gray," appeared in 1838, the fruit of a most happy association, which continued for over forty years, and which has done so much for the advancement of American botany. In relation to this most important work I can appropriately quote the words of the surviving associate. In an address before the American Academy of Arts and Sciences, of which Dr. Torrey was a member, Dr. Gray, now its President, said:

"Early in his career Dr. Torrey had resolved to undertake a general Flora of North America, or at least of the United States, arranged upon the natural system, and had asked Mr. Nuttall to join him, who, however, did not consent. At that time, when little was known of the regions west of the valley of the Mississippi, the ground to be covered and the materials at hand were of comparatively moderate compass; and in aid of the northern part of it, Sir William Hooker's Flora of British America—founded upon the rich collections of the Arctic explorers, of the Hudson's Bay Company's intelligent officers, and of such hardy and enterprising pioneers as Drummond and Douglas,—was already in progress. At the actual inception of the enterprise, the botany of Eastern Texas was opened by Drummond's collections, as well as that of the coast of California by those of Douglas, and afterward those of Nuttall. As they clearly belonged to our own phytogeographical province, Texas and California were accordingly annexed botanically, before they became so politically.

"While the field of botanical operations was thus enlarging, the time which could be devoted to it was restricted. In addition to his chair in the Medical College, Dr. Torrey had felt obliged to accept a similar one at Princeton College, and to all was now added, as we have seen, the onerous post of State Botanist. It was in the year 1836 or 1837 that he invited the writer of this notice—then pursuing botanical studies under his auspices and direction—to become his associate in the Flora of North America. In July and in October, 1838, the first two parts, making half of the first volume, were published. The great need of a full study of the sources and originals of the earlier-published species was now apparent; so, during the following year, his associate occupied himself with this work in the principal herbaria of Europe. The remaining half of the first volume appeared in June, 1840. The first part of the second volume followed in 1841; the second in the Spring of 1842; and in February, 1843, came the third and last; for Dr. Torrey's associate was also immersed in professorial duties and in the consequent preparation of the works and collections which were necessary for their prosecution.

"From that time to the present the scientific exploration of the vast interior of the continent has been actively carried on, and in consequence new plants have poured in year by year in such numbers as to overtask the powers of the few working botanists of the country, nearly all of them weighted with professional engagements. The most they could do has been to put collections into order in special reports, revise here and there a family or a genus monographically, and incorporate new materials into older parts of the fabric, or rough-hew them for portions of the edifice yet to be constructed. In all this Dr. Torrey took a prominent part, down almost to the last days of his life."

The question why was not Torrey and Gray's Flora completed, has often been asked by those not familiar with the rapid progress of botanical discovery. Such will find an answer in the words I have quoted. By the time the first volume of the Flora was finished, new materials belonging to the orders contained in that volume demanded a large appendix, and a few years later new discoveries were so numerous that it was impossible for the work to keep pace with them. Its authors pursued the best course: instead of giving their time to the completion of the Flora and allowing the new materials to pass—as they inevitably would have done—into the hands of European botanists, they turned their attention to studying and recording them. Now these discoveries of American plants are mainly recorded by American botanists in American publications, and to secure this result it was well that the Flora was suspended. In this matter—of securing the new plants—both Doctors Torrey and Gray worked, sometimes together, oftener independently, but always with the fullest coöperation. The result has been a series of memoirs unequalled in scientific value by any that have been produced in recent botanical literature. While my object is to record the botanical work of Dr. Torrey, I would not forget that others have labored in the same field. Engelmann, Durand, Newberry, Cooper, Wood, Brewer, Watson, and others whose names I do not now recall, have added to the rich stores of materials for that Flora of North America which we all hope for. Is this much-desired work within the probabilities of the near future? In the address just quoted, Dr. Gray feelingly says: "It remains to be seen whether his surviving associate of nearly forty years will be able to complete the edifice. To do this will be not only to supply the most pressing want of the science, but to raise the most fitting monument to his memory." It may not be improper to add here that Dr. Gray has made arrangements which will relieve him from much of his labor as professor, and is making every effort to devote the coming years to this most important work.

Of the memoirs on North American Botany in whole or in part by Dr. Torrey I gave a list in the address at the festival in celebration of the semi-centennial of his first botanical publication. As a mere matter of record, I briefly recapitulate what was there presented. In chronological order we find that Dr. Torrey published in:

1843, Botany of Nicollet's Report;
1845, Botany of Fremont's 1st and 2d Expeditions;
1848, Botany of Emory's Military Reconnaissance;
1850, A Memoir on Batis. A Memoir on Darlingtonia and Plantæ Fremontianæ were accepted for the Smithsonian Contributions and published a year or two later.
1852, Botany of Stansbury's Report of his explorations in the region of Great Salt Lake;
1853, The Plants of Marcy's Red River Expedition;
1854, Botany of Sitgreaves' Zuni and Colorado Journey.

The reports of the collections of the various Pacific Railroad surveys were published at intervals from 1855 to 1860, and then not in the order in which they were written.

Enumerating them as they occur in the volumes, we find in Vol. II: The Botany of Pope's, Beckwith's and Gunnison's expeditions, three comparatively brief memoirs in which Dr. Gray's name is mentioned as joint author.

Vol. IV: "Botany of Whipple's Expedition," the most important of all these Railroad surveys in botanical results.

Vol. V: "Botany of Lieut. Williamson's Report."

Vol. VIII: "Botany of Lieut. Parke's Expedition."

In other volumes of the railroad surveys are botanical reports by Newbury, Durand and others, to each of which Dr. Torrey contributed important materials, in many cases working up whole orders.

1861. The Report of Lieut. Ives' Exploration of the Colorado was published with a Botanical Appendix, mainly by Dr. Torrey.

The Report upon the Botany of the Mexican Boundary was published in 1859, the most voluminous, as it is the most important, of all these contributions to the botany of the far West. The survey was, on account of various changes, prolonged over a period of five years or more; it passed over a vast territory, which, for the most part was botanically new. Parry, Wright, Bigelow, Schott and your President all contributed their collections to make up this exceedingly valuable report, one which may fitly close the record of Dr. Torrey's more important contributions to science.

After the Report of the Botany of the Mexican Boundary was completed, Dr. Torrey made an arrangement to transfer his invaluable herbarium and his library to Columbia College, and they were placed in the rooms in which we now meet. I say invaluable herbarium, as no other collection contains so many typical specimens from which the original descriptions were drawn as does this. It is possible that the Corporation of the College is not aware of the priceless value of the treasure committed to its charge, else it would not long remain in its present unsafe position. Whenever I read a report of a fire in this quarter of the city, I fear for the safety of this herbarium. If any word of mine would impress the trustees of the College with the importance of the trust they have accepted, the herbarium would not long remain, as it is now, in an unsafe building. A library may be in time replaced, but no money can restore the specimens collected by our early explorers. When the herbarium was transferred to its present quarters it needed re-arrangement. Specimens had accumulated more rapidly than they could be disposed of, and all those collected by the recent expeditions had to be incorporated with the general herbarium. For several years succeeding the publication of the Report of the Mexican Boundary, Dr. Torrey was employed in herbarium work. No hand but his could properly perform this scientific drudgery, and he went at it with a perseverance that in time brought it to completion.

During these years of herbarium work, necessary though irksome, he was constantly examining plants and making sketches that might be useful hereafter. It was a peculiarity of Dr. Torrey that he always recorded his observations by means of the pencil, and if we look through the herbarium there will be found drawings of minute structure by hundreds, giving at a glance what he saw in examining a plant. While he published no drawings as his own, we can find traces of his handi-work all through the illustrations to his various memoirs.

The last important botanical contribution of Dr. Torrey was "The Revision of the Eriogoneae," the joint work of himself and Dr. Gray, published in the Proceedings of the American Academy in 1870.

Many years ago he elaborated that portion of the collections made upon the Pacific coast by the botanists of Wilkes' expedition. This, through the failure of appropriations, was not published upon its completion. One of the last acts of its author's life was to look over the manuscript of this report and commit its final revision for publication to Dr. Gray.

The fondness of Dr. Torrey for sciences other than botany has been already alluded to. At one time he was an enthusiastic student of entomology, or, as he expressed it—he "had the fever." This lasted but a short time, but I have been suprised at his knowledge of insects, when nearly half a century had passed since he studied them.

At one time he gave much attention to mineralogy, a pursuit in which he was often associated with another botanist—Nuttall. The earlier volumes of Silliman's Journal contain important contributions to mineralogy from his pen. Mineralogy is so intimately related to chemistry that he retained through life a lively interest in this department of science.

Those who have regarded Dr. Torrey as a botanist only, will be surprised to know that the avocation of his life was that of a chemist, and that the works that have made him an undying name in science were done in what he regarded as his hours of recreation.

As a chemist he was, as in other matters, acute, patient, cautious, and, I need not add, inflexibly honest. He was a teacher of chemistry for over thirty years and for most of this time in more than one college. His professorial labors were performed at a most interesting period in the history of the science, when chemistry made itself felt outside of the laboratory and manifested its usefulness not only in its relations to medicine and the arts but in the operations of daily life. Year after year large classes of young men went out from his lecture-room and laboratory, and among these are to be found many of the eminent chemists of the present day.

There are some chemists whose reputation is greater among the people at large than it is among men of science, and they are often upon the public platform. Dr. Torrey shrank from this kind of notoriety, and the knowledge of his acquirements as a chemist was mainly confined to scientific men. Had he been so disposed, he could have made chemistry largely renumerative, but it always seemed to me that he valued his chemical knowledge more for its benefit to others (and they not always worthy) than for any pecuniary reward it might bring to himself. I have known him to give advice of the greatest value to the recipients and make analyses, at a cost to himself of both time and money, without charge, and evidently for the pleasure it gave him to aid another.

When the U. S. Assay office was established in this city in 1854, Dr. Torrey was offered the post of Superintendent, but this being unsuited to his tastes he declined it for the scientific position of Assayer, an office which he held until his death. A short time after entering upon his duties as Assayer he resigned his chair at the medical college and was elected Professor Emeritus. This appointment as Assayer was a deserved recognition by the government of the scientific acquirements of our friend, and it is to be regretted that the salary accompanying it was not in proportion to the responsibility of the position. While discharging his duties as Assayer he was often called in consultation by the Treasury Department in matters requiring a profound chemical knowledge. He was wonderfully fertile in ingenious expedients, and much of whatever security our national currency possesses against counterfeits is due to his suggestions. The relations of Dr. Torrey to the Treasury Department had one happy result. Although he had done so much in describing and naming the plants of the far west, he had travelled but little: he "had never seen a prairie," as I once heard him say with a tone of sadness, and had never ascended a mountain higher than Mt. Marcy. It was a graceful act of the Secretary of the Treasury to send him in 1865 upon a confidential mission to California. He went by the way of the Isthmus and was able to see and enjoy the luxuriant vegetation of the tropics, and, when he reached his destination, was met by an order to make some extended explorations, for the accomplishment of which a revenue cutter was placed at his command. While in California he was able to see many of the plants he had described growing in their native localities, and to make considerable collections for the herbarium.

In 1872 he made another journey to California, this time by Railroad. Upon his return journey he tarried awhile among the Rocky Mountains and ascended Torrey's Peak, which was several years ago thus named by his former pupil, Dr. Parry. It is pleasant to think of him as passing the last days of his botanizing, in the evening of his life, among the alpine plants which in his youth he first made known to the botanical world.

Neither this last journey to California nor one made the previous winter to Florida served to arrest the disease which those who saw him only at intervals could perceive was gradually wasting his body, though it did not dim his intellect nor impair his cheerfulness. At sunset on the tenth of March last he peacefully went to his rest.

I would willingly stop here, for to us who knew him no words of eulogy are needed. Each one knows how the intelligence of his death brought to him a sense of personal bereavement and told him how strong a hold our chief had upon his affections.

But we are not to consider ourselves alone. We expect that long after all of us have followed the great botanist, young botanists will join the Torrey Botanical Club. These may ask, as it is right they should, "What manner of man was this whose name you bear?"—What answer shall we leave to them? As to his scientific attainments, his works stand in witness. For the rest we may say that he was in the highest, broadest, fullest, truest sense a Christian gentleman. I know no word that seems better to express his character. What student, however young or unknown ever came to him for aid or advice and went away unsatisfied? What older botanist ever claimed that he had been overreached by him? Who ever coupled scientific unfairness—for there is such a thing—with the name of Torrey? Who in coming here to meet him ever stopped to consider in what mood he should find him? Was there not always the same welcome to all? The same genial presence ever prevaded these rooms, and though we know it will come no more, has left a fragrance of memories that time can never remove.

Not only in his works will the name of Torrey live while our science is studied, but his name will be perpetuated so long as our present vegetation endures. The genera dedicated to many eminent botanists are represented by, if not insignificant, at least not noticeable plants. In this respect our friend was more fortunate. Many years ago an evergreen of Florida, related to the yew, was given the name of Torreya. Previously to this at least two other plants were dedicated to him, but it was found that they were genera made without sufficiently distinct characters and fortunately one of our most interesting trees could undisputedly bear this worthy name. For many years the Florida Torreya (*T. taxifolia*) was the only known species, but later discoveries have shown that the genus is represented in widely separated countries. Besides the original species in Florida, there is one in Californa, another in Japan, a third in China, and if recent European announcements are well founded, still another in the Bogotan Andes. Long after we shall have passed away and perhaps our association be forgotten, these evergreen forests in our own land and in far distant countries will keep alive the name which we now proudly and affectionately bear as the title of our Club.

Gentlemen, we have been incorporated under the name of one whom we hoped would be spared many years to receive the selectest honors we could bestow. His departure left a vacancy that none of us feels he can adequately fill. You have chosen to the chair that he would have occupied one who has these many years sat at his feet an humble follower, a loving pupil.

No matter who may be called away, the affairs of the world go on. However great a vacancy may be left, some one is chosen to fill it. No one can feel more acutely than the present incumbent how unworthy he is to fill the place to which you have chosen him. He can only endeavor by devotion to the good of the Club to leave you no occasion to regret your choice.

In taking the name of Torrey for our Club we assumed a pledge, implied if not expressed, to bear ourselves worthily. The name of Torrey should be as a sacred trust. How can we best honor it? Could he have spoken a last word to us it would not be that we should remember him by any honors to himself, but he would have asked the Club to keep alive the love for the science which he loved so much and for which he did so much. That we should follow science, as he did, with no self-seeking, but to set forth God's truth alone. That we should, as he did, do all in our power to lift up and encourage young and struggling disciples. He would say, "Listen to the great Teacher who said, 'Consider the lillies of the field' and follow him," but he was too humble to add what we can say—as he did.

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§ 35. **Nymphæa odorata,** Ait. **Rose-flowered variety.**—[We think that the remarks in Gray's Manual cover nearly all the variations mentioned in the following note, except those of *N. tuberosa*, Paine. In the Pines we have found the so-called variety *minor* to prevail. The note is nevertheless worthy of record.]

Under the impression that some old number of the BULLETIN contained an account of the rose or purple flowered variety of *Nymphæa odorata*, I found, on search, nothing further than § 66, in No. 10 of Vol. II., by "D. S. M.," mention of "quite small flowers. . . . , white within, but the outer petals and the sepals richly tinged with rose-color." I have never supposed that the marks stated by D. S. M. were sufficient to constitute, or to identify the rose-colored variety of N. odorata. If so, I can testify from personal knowledge that the variety is very common indeed, and also, that it is somewhat variable; *i. e.*, varying into white again, and, therefore, hardly a variety. For one instance out of many, about three or four weeks ago, I obtained from the "Goose Pond," in Jamaica, L. I., about thirty flowers, of "very choice and delicate perfume," and the "outer petals and the sepals richly tinged with rose-color," but the flowers were quite large. The rose-color was very decided and bright. I have repeatedly seen the same thing in New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, the ponds in W. New York, and in the New Jersey Pines; but usually the rose-color is about the color that a flower of *Trillium grandiflorum* takes on before fading—a decided and rich rose, but not extremely deep. I know of a patch in the Owasco outlet, on the edge of the city of Auburn, where I have seen the flowers some years pure white with green on the sepals, and sometimes with the rose tinge. Once, crossing from Lake George to Ticonderoga, a boy brought to the stage for sale a bunch of which two flowers had *each two rows* of rosy petals, their other petals, as well as the other flowers, being quite white. Paine's *Nymphæa tuberosa*, also, (which is remarkable for its obtuser petals, and their *clear* white color, maintained pure, without any transparency along the petal edges, until it meets the green of the sepals) I have now and then found with a rosy color on the inside of the sepals and on the outer petals. And in this case, the peduncle is less downy than when the flower is pure white. I might multiply instances.

The real rose-colored variety, if I am correct in my general supposition, I remember to have seen in 1865, on the west side of the railroad track between Atsion and Shamong, in a hot tramp on the 4th of July. All the petals were deeply colored with rose, and they were of the narrow sort, standing stiffly up in the middle of the flower, and the color deeper away from the centre of the flower. I have an impression, also, that I have seen the same variety from the car windows while passing on the same railroad, but would not make a certain statement.

Not infrequently I have seen in hot-houses the *purple*-flowered nymphæa, in large tanks. Its general appearance closely resembles that of the rose-colored variety, except that its flowers are nearly *blue*, while ours is much nearer red. I hope for some better information regarding our rose-colored variety. I. H. HALL.

§ 36. **Sarracenia purpurea**, L.—In the *American Journal* for August (which, owing to unavoidable delay, anticipates our July number), Dr. Gray asks "observers to note whether any viscid secretion appears anywhere on the smooth portion, below the orifice of the pitcher," of this plant. He would "expect the sugary secretion, if any, to appear only in warm weather." We refer our readers for more details on this interesting subject to the note on page 149 of the *Journal*.

§ 37. **Juncus maritimus**, Lam.—[In accordance with the following note, we find that we were in error in ascribing *J. Rœmerianus* to Coney Island. Our plant has the characters which Dr. Engelmann here points out as belonging to **J. maritimus**.]

In your list of Junci of the New York flora, No. 6, p. 24, you mention *J. Rœmerianus* from Coney Island. Several years ago Professor Chas. H. Peck of Albany sent me the true *J. maritimus* Lam. as collected on that same island, in Sept., 1868, a plant which I had not before seen from any American locality. Have you compared your specimens from Coney Island well; are they really *J. Rœmerianus*, and do both species grow there? If not, what then is the limit of *J. Rœmerianus*? Besides the minute characters of the flower and fruit, they can be distinguished at a distance by their habit and color. *J. maritimus* has a green contracted, *J. Rœmerianus* a spreading brown panicle, and blooms, I believe, much earlier. G. ENGELMANN.

§ 38. **Monstrous Larch.**—We noticed in Sullivan Co., this summer, a tree of the *Larix Americana*, Mch., from a majority of whose cones young branches were sprouting, the axis having taken on a new growth.

Terms—One dollar for one copy; five dollars for seven; and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

§ 39. **Fertilization of Gerardia flava, L.**—I have been watching the fertilization of this plant. The flower opens outwards, or a little downwards, with the stamens and pistil crowded close to its upper lobes. Both the cells of the anther and the summit of the stigma face toward the earth, so that self fertilization is effectually prevented; besides, the anthers appear to mature a little before the stigma, which finally projects some way beyond the longer pair. I saw a honey-bee visiting these flowers in search of pollen, both thighs being already weighted with large pellets. It entered the flower back downward, clinging to the filaments for support, and, turning around as it worked away with its proboscis, dragged the pollen out of the cells, while at the same time the pellets upon its body brushed against the stigma. Every flower must be visited, as all the seed-vessels were maturing.

Aquebogue, August. H. W. YOUNG.

§ 40. **Fern-fungus.**—A frond of *Pteris aquilina*, L., sent us by Mr. Young, was marked by black spots between the veins. Mr. Peck, the fungologist, writes that it is *Dothidea Pteridis*, Fr. (Syst. Myc. Vol. II., p. 555. Handbook of British Fungi, p. 807), and that he has seen sterile specimens only, these, like the others, being without spores.

§ 41. **Suffolk Co.—Riverhead.**—The only plant new to our State that I can report this year is *Carex striata*, Mchx.—*Rumex Engelmanni*, Ledeb., proves to be well established at the mouth of Peconic River, covering a large area of sandy beach with *Calamagrostis arenaria* and *Andropogon scoparius.*

I have also to report finding *Lobelia Dortmanna*, L. in Sweezy's pond, one mile S. W. of Riverhead;—*Tilia Americana*, L., *var. pubescens*, *Gray*, in two different localities at Northville;—*Solidago odora*, *Ait.*, *var. inodora*, *Gray*, at Laurel Pond, Franklinville, none of the typical form being found with it. The pellucid dotted leaves marked it unmistakably, but the anisate odor was as entirely wanting as in *S. arguta* with which it grew. As before I find this form in more loamy soil than the common one, and suppose that it is frequently overlooked. Does not the character of the soil alone cause the development of this scentless form? At Luce's pond in Northville I find *Cicuta bulbifera*, L; *Myriophyllum tenellum*, Bigel.; *Lathyrus palustris*, L.; and abundance of *Woodwardia angustifolia*, Smith. In shaded pools *Lemna minor*, L., abounds; while in pools of brackish marshes with *Pluchea camphorata* (Does this ever grow in soil not saline?), at Wading River I find *Utricularia intermedia*, Hayne. At Long Pond this summer *U. inflata*, Walt., has been abundant; but, owing to the unusual height of the pond, the locality of *Rhynchospora nitens* is inundated and no plants are to be found.

I desire to exchange botanical specimens, especially of the Cyperaceæ and Gramineæ.

Aquebogue P. O. HENRI W. YOUNG

§ 42. **Suffolk Co.—Wading River.**—Mr. Miller reports the very interesting discovery of *Polypremum procumbens*, L.; also specimens of *Asplenium ebeneum*, Ait., with the fronds wider than usual and the segments very sharply serrate, which he proposes to ticket at Dr. Gray's suggestion as Var. *serratum*. Among other discoveries, Mr. Miller finds *Plantago pusilla*, Nutt., almost as common as *P., Virginica*, L.; *Asclepias purpurascens*, L.; *Botrychium simplex* Hitchcock, quite abundant; *Cunila Mariana*, L.; *Scirpus polyphyllus*, Vahl.; *S. fluviatilis*, Gray; and *S. Olneyi*, Gray.

§ **43. Larix again.**—Mr. Hall noticed, in August, Larches in Central Park that had put forth new leaves and now and then a new cone.

§ **44. Aspidium fragrans, Swartz.**—We have received from Mr. Charles H. Peck beautiful specimens of this fern, from Lake Avalanche in the Adirondacks. Mr. Peck remarks, with a conscientiousness which we earnestly hope other collectors will lay to heart, "It is not plenty there, and I was careful not to exhaust the locality, so obtained but few." Mr. Robinson, of Salem, Mass., points out a probable error in Vol. III., No. 2, of the BULLETIN, where Bellows Falls, N. H., is given as a locality. He says: "I have specimens from Alpine Cascade, near Berlin Falls, N. H., and also *Woodsia glabella*, R. Brown, from the same place. I found *A, fragrans* at Crystal Cascade, near the Glen House, August, 1865."

§ **45. Herbarium for Sale.**—Dr. K. Keck, Schloss Friedegg, Schwertberg, Upper Austria, writes us that he is the owner of a very rich Herbarium, which he has concluded to sell. He states that it comprehends the Flora of the whole of Europe in rare completeness, and fourteen or fifteen thousand of the rarest species of Asia (particularly from the Russian provinces), of Africa and of New Holland, all mounted and arranged after Endlicher. In all rather more than less than 100,000 specimens, of 19,000 species. He sends us a long list of the special collections (in nearly every part of the world), from which his herbarium is derived; among them we notice the names of our own Canby and Wright, and he calls particular attention to the collection of Ledebour in the north of Asia, and of Sieber in the West Indies, New Holland and elsewhere. Dr. Keck also sends us, as a fair specimen of the richness of his collection, the names of about two hundred species of Astragalus, about eighty species of Panicum, and nearly eighty of Polypodium. He values the whole at $6,000, or $6 per hundred specimens.

We cheerfully comply with his request in calling the attention of the managers of our public institutions to this opportunity of securing a very valuable Herbarium. Of course, impartial testimony would have to be obtained from Europe. We will gladly show his letter and lists to those interested.

§ **46. Strangers.**—Just north of the Hyde Park Station of the Hudson River R. R., we found, early in September, *Rudbeckia triloba*, L., but the lower leaves were very slightly lobed, and *Galium Mollugo*, L., which is heretofore reported only from Washington Heights, New York Island. Between Poughkeepsie and the Highlands *Lythrum Salicaria*, L., abounds. We did not notice it below the Highlands, though we have been told that it occurs there.

§ **47. New Publications.**—We have received: 1. *John Torrey: A Biographical Notice*, [from the American Journal of Science and Arts, Vol. IV., June, 1873], By A. Gray.—2. *Notes on the Genus Yucca.* By George Englemann, M. D., [Transactions of the Academy of Science of St. Louis.]—3. *Descriptions of New Species* *of Fungi.* By Chas. H. Peck [Bulletin of the Buffalo Society of Natural Sciences.]—4. *Catalogue of the Phænogamous and Vascular Cryptogamous Plants of Canada and the Northeastern Portion of the United States*, including Virginia and Kentucky on the South, and Missouri, Iowa and Minnesota on the West. By Allen H. Curtiss, Liberty, Bedford Co., Va. Price: one copy, 20 cents; three copies, 50 cents; seven copies, one dollar. This catalogue, covering territory not included in any other, will be found most convenient for purposes of exchange. It is comprised in eight large pages. As it is meant for transmission, *by letter*, the species are not numbered, but, by an ingenious and readily intelligible device, the distribution and Manuals containing the descriptions are concisely given. For our own purpose we prefer this form of catalogue as less troublesome and more significant.—5. In the *American Journal*, for August, Dr. Gray has a notice of Mrs. Hooker's Translation of Maout and Decaisne, of which work he says: "It is the *desideratum*, the general work . . . . . since Lindley's Vegetable Kingdom ran out of print." If we are correctly informed the original can be imported for much less than the translation.—6. *The Popular Science Monthly* contains an excellent Memoir of Dr. Torrey with a portrait. We do not like the latter as well as that which appeared in the *American Agriculturist* for April.

§ **48. Monstrous Teucrium.**—While examining a specimen of *Teucrium Canadense*, gathered a few days ago at Coney Island, I was much surprised at finding, instead of the usual four ovules of the Labiatæ, *ten* ovules, arranged about a somewhat conspicuous central placenta. The specimen had become somewhat withered, and the flowers dried up; the calyx, however, was not in any respect out of the way. On examining another flower, my surprise was greatly increased at finding a calyx with eight teeth, four acute and four obtuse, and containing *two placentæ*, one of them surrounded by *six* ovules, the other by *five!* At once it became clear to me that the previous one, with its ten ovules, must doubtless be an imperfect attempt at a doubling like the second one. So far as I could judge from the somewhat withered flowers, there was no indication in them of this anomalous structure of the ovary. They were situated at the base of the spike; the rest of the flowers and calyces presented nothing uncommon, and the rest of the ovaries, so far as examined, had the usual fourfold division.

I should be glad to know if such monstrosities have been noted in this species by any other correspondents. To me, their occurrence was very novel.

NEW YORK, *August 28th*. D. S. M.

§ **49. Botanists of the Pacific Coast.**—Upon looking over my inaugural address in print I deeply regret to find that in enumerating (see p. 34) those who have added to the store of materials that now makes a fairly complete flora of North America possible—I have omitted to name the botanists of the Pacific Coast. As you may have judged from the manuscript, my remarks were drawn up in the most hurried manner, and I would like to place upon record what I should have done in a more careful enumeration, my high appreciation of the labors of Bolander, Kellogg, Xantus, Bloomer, Hillebrand, and their co-workers, who have so industriously labored in their interesting field, and who have done so much to elucidate obscure points in the flora of the Pacific Coast. G. T

§ 50. **Botanical Object Lessons.**—Wishing this spring to cultivate in a class of young boys a taste for the observation of nature, and having only ten minutes a day to spare, I had them bring such plants or parts of plants as they could, mostly specimens from the house areas or public squares, and gave them very little instruction till their discoveries called for it. I was surprised and delighted with the quickness of their observation when sharpened by a little encouragement. In general, nothing escaped them. One little fellow discovered the double serrature of a leaf, and another came rushing in at recess with a curiosity in the shape of a lilac leaf which had a slight tendency to be tri-lobed. I was very much interested in this instance, both because this slight irregularity had arrested his attention while at play, and because in some of the Oleaceæ the leaves are compound.

§ 51. **Postage on Plants.**—From the *United States Mail and Post Office Assistant, New York, February*, 1873, we extract the following: "The *law* fixes the rate for matter wholly or partly in writing, except book manuscript and corrected proofs passing between author and publisher, at three cents for each half ounce or fraction thereof, and the Postmaster-General has no discretion in the matter." According to this reading of the law, there must be no labels with the plants, and we have twice had to pay letter postage, because the words "Botanical Cuttings," or some equivalent phrase, had been written on the outside to explain the nature of the package. Upon our appealing to the Station-master, he stated that such was the present ruling in New York.

§ 52. **Arceuthobium in Sullivan Co.**—I enclose a few specimens of *Arceuthobium* just collected in the town of Forestburgh, Sullivan County. This is still outside the limits embraced by your Catalogue, but it is nearer than the other two known stations, and indicates a southern rather than a northern range. I looked for it in a recent trip in the Adirondack mountains, but in vain. Its occurrence here is in greater abundance than in Rensselaer County, but in a similar locality, viz., on small spruces (*Abies nigra*) in a sphagnous marsh.

Gilman Station, Sullivan Co., N. Y., CHAS. H. PECK.
Sept. 18th, 1873.

§ 53. **Errata.**—P. 24, l. 4 from bottom read Bumstead : p. 28, l. 22 from bottom read "choosing": p. 31, l. 21 from top, for "species" read "pages": p. 38, l. 19 from bottom, read "California." To the list of Dr. Torrey's publications should be added :

1837, New Genera and Species of Plants.

Terms—One dollar for one copy ; five dollars for seven : and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

54 § **Elias Durand.**—The death of Elias Durand deserves some notice at the hands of the Club, not only because he was an active promoter of our science, but because he was a long-time friend of Doctor Torrey.

Mr. Durand was born in Mayence, France, June 25, 1794, and died on the 15th of August of the present year. He was, therefore, in the 80th year of his age. He served in the medical corps of the first Napoleon, and was present at many battles. He gathered his specimen of *Menyanthes trifoliata* amid the roar of the bloody field of Leipsic, showing his strong botanical bent even then. At Hanau he was made prisoner. On the final overthrow of Napoleon he came to the United States, landing in New York in July, 1816. Settling first in Baltimore, where he married, in 1825 he removed to Philadelphia, a city which he made his home during the remainder of his life. He was by profession a pharmaceutist and chemist and, coming to this country when the science of pharmacy was in its infancy, at once took a high position to which his acquirements entitled him. He was long one of the active members of the Philadelphia College of Pharmacy, and for many years was the leading Pharmaceutist of Philadelphia. His store on Chestnut Street was the centre of attraction to the eminent physicians and men of science of twenty or thirty years ago, where his genial bearing and sympathy with scientific pursuits made all such visitors welcome. Mr. Durand was an active member of the Academy of Natural Sciences, and was for a long time at the head of its committee on botany. He retired from business, with a competence, many years ago, but did not give up his love for botany, as nearly every day found him at the herbarium of the Academy engaged in some useful work.

The manner in which Mr. Durand's attention was directed to the flora of this country is perhaps a bit of history worth recording. An eminent botanist thus relates it: "I give it as nearly as I can "recollect, it being now some thirty years since I heard it from his "own lips.

"When Mr. Durand left France for this country, American "plants were but little known and in great demand. Some one, "whose name I do not remember, but a gentleman of means, and "if I mistake not, of title, gave the young Durand funds with "which to purchase for him a collection of North American Plants. "At that time Rafinesque was in the height of his erratic career, "and Durand arranged with him to furnish the required collection. "After the bargain was made, Rafinesque, always poor, contrived "to get his pay in advance. The time at which the collection was "to be delivered had expired, and the day upon which the vessel was "to sail was close at hand, and still the plants were not delivered. "At last, on the very day of the sailing of the vessel, Rafinesque "appeared with his parcels of specimens. Durand had only time "for a hasty inspection and found that the bundles consisted of "a lot of worthless rubbish. He was highly mortified at being "obliged to send to his friend, who had already paid a liberal price, "such a poor return, and he determined to make amends by form-

"ing a collection himself. With this view he began to herborize, "and in the course of a few years sent to his friend a remittance of "plants that was every way satisfactory. Having begun the study "in this manner, he formed for it a real love which remained with "him through life. As to Rafinesque, he was always poor and in "trouble, and in the last years of his life it came in Durand's way to "afford him assistance. When Rafinesque died, his accumulations "fell into Mr. Durand's hands; he selected such specimens as he "needed for his own herbarium, and then forwarded the parcels to "me. This was some twenty-five years ago, and my herbarium was "small. I well remember with what delight I received the huge "parcels, nearly a cart-load, of Rafinesque's collection. As well as "I can now recollect there remain in my herbarium but just two "specimens. A more worthless lot of dried sticks and leaves—it "would be wrong to call them specimens—it would be difficult to "imagine. If the stuff that came to me in any manner represented "that collected for Mr. Durand's friend, I can well understand how "he must have felt it necessary to make some reparation."

Rafinesque was, neverthless, an eager observer, however slovenly a maker of what Schleiden spitefully calls herbarium hay.

Mr. Durand collected very thoroughly in the neighborhood of Philadelphia, and was the constant friend of all botanists who visited that city. Although he never said so directly, no doubt he did much to assist Nuttall. Nuttall was, by the way, an eccentric botanist. Although they met so frequently at the Academy and elsewhere, and were, so to speak botanically intimate, yet Durand never knew how or where Nuttall lived.

When Mr. Durand retired from business it was his desire to devote himself to botany, but at that time his eye-sight failed him to such a degree as to prevent him from close application to a study that requires correct observation.

His principal contributions to botanical literature were: *Plantæ Heermannianæ* in conjunction with Dr. Hilyard, this is an account of a collection made in South California; *Plantæ Pratteninanæ Californicæ*, an account of a collection made by Henry Pratten, Esq These were published in the Journal of Botanical Science in 1854 and 1855. The first of them was republished with additions in the 5th vol. of the Pacific R. R. surveys. In 1859 he published in the Journal of the Academy a *Sketch of the Botany of the Basin of the Great Salt Lake of Utah.* This was founded upon a collection made by a lady, Mrs Carrington, a resident of Salt Lake City, and the plants described in other memoirs were here enumerated so as to present a view of the botany of that region up to the time of the publication. Mr. Durand was also the author of a treatise *Sur les Vignes et les Vins des Etats Unis* (published in France,] and of an enumeration of the plants collected in the Polar regions by Kane and Hayes.

Although so long a resident of this country, Mr. Durand remained a thorough Frenchman. It was the pride of his life to have served under *l'Empereur*, and when Napoleon's nephew had medals distributed to those who had served under his uncle there was no more happy recipient of this bronze token than our friend Durand During his career he accumulated an herbarium which, though not remarkably large, was of great value. It probably contained a more complete set of Nuttall's collections than any other, not excepting the herbarium of the Academy. In 1868 he carried out his long cherished intention of depositing this herbarium in the Paris Museum, and made a voyage to France almost solely for that purpose. We regret that our friend had not sufficient American feeling to allow his herbarium to remain in the country where it would be most useful. In his will he directed that specimens he had accumulated since 1868 should be incorporated with the main collection. His botanical library he directed to be deposited in the herbarium room of the Academy, where it can be available for the working botanists, who have heretofore been obliged to go to the general library for works of reference.

Mr. Durand was personally an exceedingly courteous and genial gentleman, who probably did as much for botany by the encouragement he gave others, as by any direct contributions he made himself.

§ 55. New Species of Fungi, by W. R. Gerard. *No. I.*

Æcidium Nesææ, *n. sp.*—*Spermogonia.*—Spermogonia situated on a thickened yellowish spot, on the upper surface of the leaves, opposite the clusters of peridia. *Protospores.*—Perithecia densely aggregated, seated on a greatly thickened subiculum, either in circinating or elongated clusters; spores orange yellow, .0007′ in diameter.

On leaves and stems of *Nesæa verticillata*, greatly distorting them. Where it attacks the stems it forms large gall-like excrescences, from one to three inches in length, and about three-quarters of an inch thick, variously twisting the stems and very often bending them nearly double; on these excrescences the peridia are closely arranged in parallel lines.—Poughkeepsie, Aug.—Oct.

Trichobasis Hyperici, *n. sp.*—Sori roundish, minute, reddish-brown, surrounded by the ruptured epidermis; scattered extensively over both surfaces of the leaf. Spores brown, ovoid, rugose; .001″ long.

On both surfaces of leaves of *Hypericum corymbosum.* It is probable that this is the primary form of *Uromyces Hyperici.* Schw. —Poughkeepsie, August and September.

Sphæropsis Averyana, *n. sp.*—Epiphyllous; spots dark-brown, perithecia circinating, each seated on a dense white mycelium; spores rod-shaped, hyaline, .0003′ long.

On leaves of *Richardia Aethiopica*, in the fernery of Dr. Avery of Vassar College, Poughkeepsie, July.

Discosia maculaecola, *n. sp.*—Spots orbicular, white, circumscribed by a dark brown line. Perithecia flattened, rugose-plicate, sometimes scattered over the spots, but oftener seated near the circumference. Spores 3-septate, obliquely aristate at each extremity; .0006′ long.

On the upper surface of living leaves of *Smilax rotundifolia.*

Poughkeepsie, Summer and Autumn. This species has the aspect of a *Septoria* or *Phyllosticta.*

Septoria Verbenae, *n. sp.*—Epiphyllous; spots minute, orbicular, white; perithecia few, minute, scattered over the spots; spores long, thread-shaped, very-pale yellow, filled with a row of nucleoli, .0024′ long.

On leaves of *Verbena hastata.* Poughkeepsie, Autumn.

41 **Peziza chrisophthalma,** *n. sp.*—Small, sessile, margin raised, disk at first concave, at length convex. Asci clavate, .01′ long; paraphyses clavate, filled with orange-yellow granules; spores broadly oval, .001′ by .0006′, with a single nucleus. Whole plant deep orange-yellow, about one line in diameter.

On damp earth, among mosses, in gardens. September, Poughkeepsie.

Uncinula geniculata, *n. sp.*—Hypophyllous; mycelium in roundish spots, or sometimes covering nearly the whole surface; persistent. Conceptacles, .004′ in diameter; appendages 30-40, one and a half times the length of the diameter of the conceptacles; sporangia 5–8, ovate, rostrate; spores 6.

The appendages have a tendency to become angularly bent, whence the specific name.

On *Morus rubra.* August—October. Poughkeepsie.

§ **56. The Connecticut Valley Botanical Society**—held its first annual meeting at Amherst, Mass., Oct. 1.

This is a new society, numbering about twenty members, ladies and gentlemen.

President—Prof. C. H. Hitchcock, Hanover, N. H.
Vice-President—Rev. H. G. Jesup, Amherst, Mass.
Secretary—Mrs. M. L. Owen, Springfield, Mass.

It is designed as a bond of Union among the lovers of Botany throughout the Connecticut valley, both for general study of the science and to ensure a more thorough acquaintance with the flora of this most interesting portion of New England. H. G. J.

§ **57. Cyperaceæ**—We want much more material before entering upon our list of this order.

§ **58. Hepaticæ Exsiccatæ**—Mr. Austin informs us that he is now printing for this work. It will contain over 170 numbers, and will be accompanied with a pamphlet like the "Musci." The price will be for the present $15 (never less).

§ **59. List of Botanists.**—We shall do all in our power to get this ready for the next number of the Bulletin. We hope that those who have information which they have not furnished will give it without delay. Our field is North America and the West Indies.

§ **60.** The sketch of Mr. Durand is, in the main, a paper read to the Club by its President. We have added a few facts for which we are chiefly indebted to the kindness of Mr. Thomas Meehan. The faults are our own.

Terms—One dollar for one copy; five dollars for seven: and half a dollar for every additional copy per annum.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

Vol. IV No. 11.] BULLETIN OF THE TORREY BOTANICAL CLUB. [New York, Nov., 1873.

BOTANICAL DIRECTORY,[1]

FOR

NORTH AMERICA AND THE WEST INDIES.

PART I.

EXPLANATION.—The name of the State and the department of the science are indicated here: the full address will be found under the name of the State in Part II. The prefix "Spec." implies that the subject which follows is at present more particularly in favor, but not exclusively; without that prefix, exclusively. "Cult." stands for "cultivated" or "cultivates." Additions and corrections for the Second Edition, next Autumn, are earnestly requested.

A.

Alcott, Rev. W. P., Ct.
Alger, R. F., Mass.
Allen, Dr. T. F., N. Y. and Ct. *Spec. Medical and Characeae.*
Allmendinger, Miss E. C., Mich.
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Ames, Mrs. Fanny G., Pa.
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Aughey, Prof. Samuel, Nebraska.
Austin, C. F., N. J. *Spec. Musci and Hepaticae.*
Austin, E. P., D. C. *Spec. Michigan.*
Averill, Horace, N. Y. *Marine Algae.*

B.

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Bailey, W. W., R. I.
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Barratt, Dr. Joseph, Ct. *Spec. Salices and Solidagines.*
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Brownne, Robert H., N. Y.
Buchanan, I., N. Y. *Cult.*

[1] For additions & corrections see vol. VI, p. 41, 104, 116, 128,

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Parker, Thos. J., N. Y.
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Ruger, M., N. Y.

S.

Sager, Prof. Abram, Mich.
Salisbury, Prof. J. H., Ohio. *Fungi.*
Sargent, Chas. Sprague, Mass. *Spec. Cult.*
Saunders, Wm., Br. Am.
Saunders, Wm., D. C. *Cult.*
Sauvalle, Francisco Adolfo, W. I.
Saurman, Dr. B. F., Fla.
Scarborough, George, N. J.
Schaan, Dr. Felix, Ill.
Schott, Dr. Arthur, D. C. *Spec. Mexican and Central American.*
Scofield, Samuel L., N. Y.
Scott, J. G., Mass.
Scribner, F. Lamson, Me. *Spec. Gramineae and Carices.*
Seal, Thomas, F., Pa.
Seaman, W. H., D. C.

Seeyle, Rev. Mrs. S. T., N. Y. *Spec. Marine Algae.*
Sewell, Dr. J. A., Ill.
Shaffer, Dr. Charles, Pa.
Shattuck, Miss Lydia W., Mass. *Spec. Filices.*
Shattuck, Miss M. M.
Shaw, Henry, Mo. *Spec. Cult.*
Sheldon, Prof. D. S., Iowa.
Shepley, Henry, Ill.
Sherman, J., Mass.
Sherman, Dr. Lewis, Wis.
Shoop, Rev. Darius R., Mich.
Shriver, Howard, Va. *Spec. Solidagines.*
Siedolf, Dr. Charles, N. J. *Spec. Cult.*
Sinclair, J., Pa.
Skinner, Dr. A. G., N. Y.
Smith, Aubrey, H., Pa.
Smith, Prof. C., Wash. Ter.
Smith, Chas. E., Pa.
Smith, Daniel B., Pa.
Smith, Dr. George, Del.
Smith, Prof. H. L., N. Y. *Spec. Diatom and Desmid.*
Smith, Sarah E., Mass.
Smith, W. R., D. C.
Snow, Prof. Frank H., Kans.
Sprague, C. J. Mass. *Fungi.*
Sprague, Isaac, Mass. *Botanical Artist.*
Stabler, Dr. R. H., Va.
Standish, Mrs. J. V., Ill. *Spec. Cult.*
Stauffer, Jacob, Pa.
Stephenson, Rev. James, Md.
Stevens, Dr. George T., N. Y.
Steward, Dr. J. T., Ill.
Stillwell, C. M., N. Y.
Stiver, Dr. Charles A., Cal.
Sturton, Samuel, Br. Am.
Sullivant, Jos. E., Ohio.
Sutten, G. B., N. Y.
Swallow, Prof. G. C., Mo.
Sweezy, Mrs. John C., N. Y.
Swift, Henry M., N. Y.

T.

Tatnull, Edward, Del.
Tegen, John F., Ad., *Spec. Cult.*
Tenney, Prof. Sanborn, Mass.
Thomas, John J., N. Y.
Thurber, Prof. Geo., N. Y. *Spec. Cult. and Gramineae.*
Thurston, Louise M., Mass.
Townsend, J. L., Utah.
Townshend, Dr. Norton S., Ohio.
Tracy, C. M., Mass.
Treat, Mrs. Mary, N. J.
Trippe, Miss Ella F., R. I.
Trippe, T. Martin, N. J.
Tryon, Geo. W., Jr., Pa.
Tuckerman, Prof. Ed., Mass. *Spec. Lichenes.*
Tuthill, Frank H., Mich.
Tutwiler, Miss Julia S., Ala. *Spec. Filices.*

U.

Upham, Warren, N. H.

V.

Van Brunt, C., N. Y.
Van Gieson, Rev. A. P., N. Y.
Van Vleck, B. H., Wis.
Vasey, Dr. Geo., D. C.
Vinal, Rev. C. C., Me. *Cult. Filices.*
Vose, Jas. E., N. H.

W.

Walker, C. A., Mass. *Botanical Draughtsman.*
Wall, J. L., N. Y.
Ward, Jas. W., N. Y.
Ward, Dr. R. H., N. Y. *Spec. Microscopic.*
Ward, Rev. W. H., N. Y.
Warder, Dr. J. A., Ohio.
Warne, H. A., Ill.
Waring, W. G., Pa.
Warren, Rev. —, Ohio.
Watson, Sereno, Mass. *Spec. Western.*
Watt, David A. P., Br. Am. *Spec. Acrogens.*
Wellman, C. P., Ill.
Wheeler, Charles F., Mich.
Whitman, A. G., Mass.
Whittem, Wm. A , Pa.
Whittington, Miss Mary, Ky.
Whorf, Edward H., Mass. *Spec. Filices.*
Wibbe, Rev. Father Herman, Th. D., N. Y.
Wilber, G. M., N. Y.
Wilcoxson, Dr. L. D., Ct.
Wilkins, Daniel, N. H.
Willey,—— N. Y.
Willey, H., Mass. *Lichenes.*
Williams, John, Ill.
Williamson, John, Ky.
Willis, Prof. O. R., N. Y.
Wilson, Miss D., N. Y.
Wilson, Hugh, Mass. *Cult. Spec. Filices.*
Wilson, James, Kans. *Spec. Filices.*
Wilson, Miss M. L., N. Y.
Wilson, Nathaniel, W. I.
Winchell, Dr. Alexander, N. Y.
Winchell, Prof. N. H., Minn.
Wirt, I. R., Pa.
Wister, W. Wynne, Pa.
Wolf, John, Ill.
Wolle, Rev. Francis, Pa.
Wood, Prof. Alphonso, N. Y.
Wood, Charles, Ill.
Wood, Prof. H. C., Jr., Pa. *Spec. Fresh-water Algae.*
Wood, Mary E., Cal. *Marine Algae.*
Woodward, Dr., D. C. *Microscopic.*
Woolson, Geo. C., N. Y. *Spec. Cult.*
Woolson, M., N. H. *Spec. Woods.*
Wright, Charles, Ct. *Spec. Cuban, Texan and New Mexican.*
Wright, R. M., Mass.
Wright, Dr. Samuel H., N. Y.

X.

Xantus, L. J., Pesth, Hungary. (Mexico, *fide Eaton.*

Y.

Youmans, Miss Eliza, N. Y.
Young, A. H., Ind.
Young, A. R., N. Y. *Marine Algae.*
Young, Henri W., N. Y. *Spec. Cyperaceae and Gramineae.*
Young, Mrs. M. J., Texas.

PART II.

BRITISH AMERICA.

Bailey, Prof. L. W., Fredericton, N. B.
Barnston, G., Montreal.
Bell, Prof. Robert, Canada West.
Cormac, W. C., New Westminster, Br. Columbia.
Dawson, Principal J. W., LL.D., McGill University, Montreal, Can.
Drummond, A. T., Montreal, Canada.
Fowler, Rev. James, Bass River, N. B.
How, Prof. Henry, Windsor, N. S.
Jack, Peter, Halifax, N. S.
Jones, Lloyd, Victoria, Br. Columbia.
Lawson, Prof. Geo., Halifax, N. S.
Lindsay, A. W. H., Halifax, N. S.
Mackay, A. H., Pictou, N. S.
Macoun, Prof. John, Belleville, C. W.
Matthew, Geo. F., Custom House, St. John, N. B.
McCord, D. R., Montreal, Canada.
Roy, Mrs. Wm., Owen Sound, Ontario, Can.
Saunders, Wm., Dundas St., London, C. W.
Sturton, Samuel, Quebec, Canada.
Watt, David A. P., Montreal, Canada.

UNITED STATES.

ALABAMA.

Harvey, Wm., Mobile.
Mohr, Ch., Mobile.
Peters, Thomas M., Moulton.
Tutwiler, Miss Julia S., Havana P. O. *Absent in Europe.*

CALIFORNIA.

Ames, Mrs. Mary E. P., Taylorsville, (Indian Valley,) Plumas Co.
Anderson, Dr. C. L., Santa Cruz.
Bloomer, H. G., San Francisco.
Bolander, Prof. H. N., San Francisco.
Carr, Dr. (Ezra ?), San Francisco?
Cooper, Dr. J. G., San Francisco.
Gibbons, Dr. Wm. P., Alameda.
Kellogg, Dr. A., San Francisco.
Lemmon, J. G., Sierraville, Sierra Co.
Muir, John, Yosemite Valley.
Stiver, Dr. Chas. A., San Francisco.
Wood, Mary E., Santa Cruz.

COLORADO.

Brandegee, Townshend S., Canon City.
Boyd, David, Greeley.
Greene, Rev. E. L., Pueblo (or Greeley ?).

COLUMBIA (District of) TERRITORY.

Antisell, Prof. Thos., M. D., Washington. (Expected back from Japan by next Summer.)
Austin, E. P., Washington.
Billings, Dr. J. S., U. S. Army, Washington.
Chickering, Prof. J. W., Washington.
Clark, Prof. Frank W., Howard Univ., Washington.
Coulter, J. M., Washington.
Hayden, Prof. E. V., Washington.
Saunders, Wm., Dept. of Agric., Washington.
Schott, Dr. Arthur, Georgetown.
Seaman, W. H., Dep. of Agric., Washington.
Smith, W. R., U. S. Bot. Garden, Washington.
Vasey, Dr. Geo., Dep. of Agric., Washington.

CONNECTICUT.

Alcott, Rev. W. P., Greenwich.
Allen, Dr. T. F., Litchfield.
Barratt, Dr. Joseph, Middletown.
Brewer, Prof. Wm. H., New Haven.
Denslow, Herbert, New Canaan.
Eaton, Prof. Daniel C., New Haven.
Edwards, Miss Sara, New Haven.
Elmore, Samuel E., Hartford.
Hall, Franklin W., New Haven.
Hollister, G. H., Litchfield.
Marshall, M. A., New Haven.
Richards, James, Litchfield.
Rounds, C. C., Farmington.
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Wright, Charles, Wethersfield.

DAKOTA.

Dr. W. Matthews ?

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Fendler, Augustus, Seaford.
Febiger, Christian, New Castle Co.
Smith, Dr. Geo., Darby.
Tatnall, Edward, Wilmington.

FLORIDA.

Chapman, Dr. A. W., Apalachicola.
Keeler, H. D., Jacksonville.
Reynolds, Miss Mary C., St. Augustine.
Saurman, Dr. B. F., Apalachicola.

GEORGIA.

Berckmans, P. J., Augusta.
Neissler, Hugh M., Butler, Taylor Co.

ILLINOIS.

Atwater, Mrs. E. E., Chicago.
Bean, Thos. E., Galena.
Bebb, M. S., Fountaindale, Winnebago Co.
Brendel, Dr. Frederick, Peoria.
Burrill, Prof. T. J., Urbana.
Doggett, Mrs. Wm. E., Chicago.

Everett, Dr. O., Dixon, Lee Co.
Forbes, S. A., Normal.
French, Prof. G. H., Ill. Agric. Coll., Irvington.
Hale, Dr. E. M., Chicago.
Hall, Elihu, Athens, Menard Co.
Hartley, Fielden, Alton.
Hill, Prof. E. J., Kankakee.
Holmes, Miss Mary E., Rockford.
Hubbard, Miss Sara A., office of *Evening Post*, 86. Dearborn St., Chicago.
Hurd, Prof. A., Galesburg.
Johnson, Dr. H. A., Chicago.
Jordan, Miss Mary E., Decatur.
Kemp, Prof. A. G., Galesburg.
Livingston, Prof. Wm., Galesburg.
Mead, Dr. S. B., Augusta, Hancock Co.
Milligan, Mrs J. M., Box 458, Jacksonville.
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Norton, Miss M. E. B., Rockford.
Patterson, H. N., Oquawka, Henderson Co.
Pech E., Chicago.
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Potter, Prof. B. S., Springfield.
Rand, Wm. H., Chicago.
Rauch, Dr. J. H., Chicago.
Schaan, Dr. Felix, Chicago.
Sewell, Dr. J. A., Normal.
Shepley, Henry, Canton, Fulton Co.
Standish, Mrs. J. V., Galesburg.
Steward, Dr. J. T., Peoria.
Warne, H. A.
Wellman, C. P., Maquon.
Williams, John, Fountaindale.
Wolf, John, Canton, Fulton Co.
Wood, Charles, Augusta, Hancock Co.

INDIANA.

Carrier, Rev. Joseph C., Notre Dame P.O.
McKiernan, Geo. S., New Albany.
Moore, Prof. Joseph, Richmond.
Redding, Thos. B., Newcastle.
Ridgway, Robert.
Young, A. H., Hanover.

IOWA.

Arthur, J. C., Charles City.
Babcock, H. H., removed from Chicago.
Bessey, C. E., Prof. Iowa Agric. Coll., Ames.
Calvin, Prof. Samuel, Iowa City.
Covel, Mrs. Harriet, Dubuque.
Dickinson, Mrs. W. P., Dubuque.
Harbour, G. P., Oskaloosa.
Horr, Dr. Asa., Dubuque.
Lawton, Miss Emily, Dubuque.
Parry, Dr. C. C., Davenport.
Parvin, Prof. T. L., Iowa City.
Sheldon, Prof. D. S., Davenport.

KANSAS.

Carruth, Prof. J. H., Lawrence.
Hall, Prof. E.
Merrill, Prof. Geo. C., Topeka.
Mudge, Prof. B. E., Manhattan.
Papineau, Edwin A., Topeka.
Snow, Prof. Frank H., Lawrence.
Wilson, James, Leavenworth.

KENTUCKY.

Beatty, Dr. Ormond, Centre College, Danville.
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Crosier, Dr. E. S., Custom House, Louisville.
Darby, Dr. John, Kentucky University.
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Fales, Prof. J. C., Centre College, Danville.
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McElroy, Miss Rose, Lebanon.
Peter, Prof. Robert, Lexington.
Pope, Chas. H., 331, 8th St., Louisville.
Richardson, W. Allan, Louisville.
Whittington, Miss Mary, Harrodsburg.
Williamson, John, 63, Market St., Louisville.

LOUISIANA.

Joor, Dr. J. F., Baton Rouge.

MAINE.

Fernald, Prof. C. H., Orono.
Fuller, C. B., Curat. Nat. Hist. Soc., Portland.
Hallowell, Miss Susan M., Bangor.
Hayes, Prof. B. F., Lewiston.
Hilgard, Prof. Theo. C., U. S. Coast Survey.
Scribner, F. Lamson, Augusta.
Vinal, Rev. C. C., Kennebunk.

MARYLAND.

Breckenridge, W. J., Govanstown.
Greene, A. C., Frostburg.
Hertzog, Dr., Baltimore.
Hiffelman, M. E., Hagerstown.
Nott, Rev. John W., Mount Savage Alleghany Co.
Tegen, John F., Frostburg.
Stephenson, Rev. James, St. Inigo's, St. Mary's Co.

MASSACHUSETTS.

Alger, R. F., Dedham.
Anderson, Miss Susan E., Shelburne.
Bacon, Austin, Natick.
Bigelow, Dr. Jacob, Boston.
Biscoe, Prof. T. D., Westborough.
Bolles, Rev. E. C., Salem.
Boott, Wm., Boston.
Bowen, Miss Susan, South Hadley.
Bray, Mrs. Maria H., West Gloucester.
Burbank, Prof. I. S.
Burr, Fearing, Hingham.
Buswell, E. W., Boston.
Butler, Rev. S. R., Northampton?
Carter, Miss Maria E., Woburn.
Castelahn, Karl.
Chadbourne, Pres. Paul A., Williamstown.
Clark, M. W., Hingham.
Clark, R. B., Fitchburg.
Clark, Pres. W. S., Agric. Coll., Amherst.
Cochrane, Mrs. H. A., Gloucester.
Cummings, John, Woburn.
Cushing, Henry W., 40, State St., Boston.
Dame, Prof. Luther, Newburyport.
Dame, L. L., Stoneham.
Davenport, Geo. E., 8, Province St., Boston.
Davis, Mrs. Abby, Gloucester.
Davis, Miss Mary E., East Somerville.
Dawson, Jackson, Forest Hills.
Earle, Miss A. B., Worcester.
Edwards, Wm., South Natick.
Emerson, Geo. B., Boston.
Emerton, James H., Salem.
Endicott, Wm. E., Canton.
Farlow, Dr. Wm. G., Cambridge. *Absent in Europe.*
Faxon, Edwin, Boston.
Faxon, C. E., 136, Broad St., Boston.
Faxon, Walter, Cambridge.
Fowler, Samuel P., Danvers.
Francis, Dr. G. E., Worcester.
Goodale, Prof. Geo. L., Cambridge.
Gray, Dr. Asa, Botanic Garden, Cambridge.
Guerineau, Louis, Botanic Garden, Cambridge.

Hedge, F. H., Jr., Cambridge.
Hervey, E. W., New Bedford.
Hills, N., Lynn.
Hitchings, E. H., 40, Chambers St., Boston.
Holton, Rev. I. F., Everett.
Horner, Mrs. C. N. S., Georgetown.
Hosmer, Miss Abbie, Concord.
Hosmer, Miss Eliza, Medford.
Hosmer, Miss Jane, Concord.
Ingraham, Robert, New Bedford.
James, Prof. Thos. P., Cambridge.
Jenks, C. W., Boston.
Jesup, Rev. H. G., Amherst.
Knapp, C., Girls' Normal School, Boston.
Lawrence, Miss M. L., Worcester.
Lusk, Rev. Mrs., Uxbridge.
Mason, O. A., Medway.
Mills, Miss Jennie, Waltham.
Morse, Miss E. S., Worcester.
Orne, John, Cambridge.
Owen, Mrs. V. L., Springfield.
Palmer, Dr. Edward, Peabody Museum, Cambridge.
Parker, Prof. Wm. A., Amherst.
Peck, Rev. David, Sunderland.
Phippen, Geo. D., Salem.
Piper, Mrs. S. M., Tolland.
Pratt, Minot, Concord.
Putnam, F. W., Naturalist's Agency, Salem.
Rand, E. S., Jr., Glen Ridge, Dedham.
Robbins, Dr. J. W., Uxbridge.
Robinson, John, Salem.
Ross, Waldo, Jamaica Plain.
Sargent, Chas. Sprague, Brookline.
Scott, J. G., Westfield.
Seeyle, Rev. Mrs. S. T., East Hampton.
Sherman, J., Medford.
Shattuck, Miss Lydia W., South Hadley.
Smith, Sarah E., Waltham.
Sprague, C. J., Boston.
Sprague, Isaac, Grantville.
Tenney, Prof. Sanborn, Williamstown.
Thurston, Louise M., Lexington.
Tracy, C. M., Lynn.
Tuckerman, Prof. Ed., Amherst.
Walker, C. A., 220, Broadway, Chelsea, Box 35, P.O.
Watson, Sereno, Botanic Garden, Cambridge.
Whitman, A. G., Boston.
Whorf, Edward H., Boston.
Willey, H., New Bedford.
Wilson, Hugh, Salem.
Wright, R. M., Williston Seminary, East Hampton.

MICHIGAN.

Allmendinger, Miss E. C., Ann Arbor.
Beal, Prof. Wm. J., Agric. Coll., Lansing.
Bigelow, Dr. J. M., Detroit.
Clark, Dr. Daniel, Flint.
Clark, Miss Mary H., P. O. Box 169, Ann Arbor.
Coleman, N., Grand Rapids.
Dorsch, Dr. Edward, Monroe.
Eaman, Miss Mary, 25, Henry St., Detroit.
Foote, Lewis, Detroit.
Gillman, Henry, 80, Elizabeth St., West Detroit.
Harrington, Prof. M. W., Ann Arbor.
Lyons, Dr. A. B., 54, Fort St., West Detroit.
Sager, Prof. Abram, Ann Arbor.
Shoop, Rev. Darius R., Bellevue.
Tuthill, Frank H., Kalamazoo.
Wheeler, Charles F., Hubbardston, Ionia Co.

MINNESOTA.

Cornish, Alice F., St. Paul.
Roberts, C. H., Rochester.
Winchell, Prof. N. H., St. Anthony's.

MISSISSIPPI.

Little, Dr. Geo., Oxford.

MISSOURI.

Broadhead, G. C., Pleasant Hill.
Dean, Dr. D. V., St. Louis.
Engelmann, Dr. Geo., St. Louis.
Fritchey, J. Q. A., St. Louis.
Morse, Dr. L. D., Kirkwood.
Muir, Wm., Fox Creek P.O., St. Louis Co.
Murtfeldt, Mary E., Kirkwood.
Riley, Prof. C. V., State Entomologist, Room 29, S.E. corner of 5th and Olive Sts., St. Louis.
Shaw, Henry, St. Louis.
Swallow, Prof. G. C., Columbia, Boone Co.

NEBRASKA.

Aughey, Prof. Samuel, Lincoln.
Grant, J. M., Crowellton, Buffalo Co.

NEW HAMPSHIRE.

Barrows, Dr. Nathan, Meriden.
Blanpied, B. T., Hanover.
Flint, Wm. F., Richmond.
Gilbert, Mrs. E. J. C., Keene.
Hitchcock, Prof. C. H., Hanover.
Hitchcock, Miss Mary, Hanover.
Upham, Warren, Nashua.
Vose, James E., Francestown.
Wilkins, Daniel, Littleton.
Woolson, M., Concord.

NEW JERSEY.

Apgar, Prof. A. C., Trenton.
Austin, C. F., Closter.
Blanchard, Edward R., Bergen. (413, Broadway, N. Y.)
Boice, Miss Carrie A., Camden.
Bourquin, Frederic, Camden.
Brown, R. Willis, Box 2, Keyport.
Cope, Prof. E. D., Haddenfield.
Davis, Chas. M., Bloomfield.
Edwards, Dr. A. M., 241, Broad St., Newark.
Ellis, J. B., Newfield.
Eude, Dr. Charles, corner of 7th and Washington Sts., Hoboken.
Fuller, A. S., Ridgewood.
Hochstein, A. H., 58, 7th St., Hoboken.
Howland, Mrs. Francis, Engelwood.
Knighton, Rev. Frederic, Cranberry, Mercer Co.
Lockwood, Rev. Samuel, Freehold, Monmouth Co.
Martindale, Isaac C., National State Bank, Camden.
Parker, Chas. F., Camden.
Pittinger, Rev. Wm., Vineland.
Scarborough, George, Vineland.
Siedolf, Dr. Chas., North Hoboken.
Treat, Mrs. Mary, Vineland.
Trippe, T. Martin, Orange.

NEW YORK.

Allen, Dr. T. F., 3, E. 33d St., New York.
Andrews, Dr. T. L., Niagara Falls.
Armsby, Dr. J. H., Albany.
Averill, Horace, 151, Washington St., Brooklyn.
Bagg, Dr. M. M., Utica.

Baily, Dr. Cady, Chatham, Columbia Co.
Barstow, Dr. J. W., Sanford Hall, Flushing, Queens Co.
Bates, Dr. Joseph, New Lebanon Spa, Columbia Co.
Beauchamp, Miss M. E., Skaneateles.
Beauchamp, Rev. M. W., Kings Ferry, Cayuga Co.
Both, Dr. Carl, till next summer, Rochester. Home in Boston, Mass.
Bourquin, Mr. — Newburgh, Orange Co.
Bowen, Mrs. W. C., Skaneateles.
Bower, Wm., 53, Fulton St., N. Y.
Bradley, Dr. S. B.? West Greece, Monroe Co.
Brainerd, Geo. B., 23, Lafayette Ave., Brooklyn.
Brevoort, J. Carson, Brooklyn.
Brownne, Robert H., Lyceum Nat. Hist., 64, Madison Ave., N. Y.
Buchanan, I., 9, W. 17th St., N. Y.
Bumstead, Dr. F. J., 32, W. 26th St., N. Y.
Burgess, Edward S., Panama, Chatauqua Co.
Cassebeer, H. A., 9th St. and 4th Ave., N. Y.
Clinton, Judge G. W., Buffalo.
Coles, Isaac, Glen Cove, Queens Co.
Comstock, Frederic H., 240, E. 23d St., New York.
Cook, Miss Mary, Bridge Hampton, Suffolk Co.
Coventry, Dr. J., Newark, Wayne Co.
Cowles, S. N., Otisco, Onondaga Co.
Crittenden, Claude, Athenæum Library, Rochester.
Crooke, J. J., 163, Mulberry Street, New York.
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Day, David F., Buffalo.
Day, Dr. W. De F., 56, E. 34th Street, New York.
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Dowd, Miss S. E., 3, S. Union St., Rochester.
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Englehardt, Prof. Francis E., Syracuse.
Errington, Miss G., Townsend Ave., Clifton, Richmond Co.
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Fish, Geo. T., 35, Arcade, Rochester.
Fisher, Dr. G. J., Sing Sing.
Froebel, Prof. C. H., College of Pharmacy, University Building, N. Y.
Frost, Prof. S. T., Amenia, Dutchess Co.
Fuller, Joseph, Rochester.
Gay, Dr. C. C. F., Buffalo.
Gerard, C. B., Poughkeepsie.
Gerard, W. R., Poughkeepsie.
Gilbert, Benj. D., Utica.
Gindra, Mr.—, Poughkeepsie.
Gould, John S., Hudson.
Green, Dr. C., Homer.
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Hazeltine, Dr. G. W , Jamestown.
Healy, Dr. E. P., Medina.
Hexamer, Dr. F. M., New Castle, Westchester Co.
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Holmes, E. S., Wilson, Niagara Co.
Hooper, Mrs. Nancy S., Binghamton.
Hough, Franklin B., Lowville, Lewis Co.
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Howe, Dr. Elliott C., Yonkers.
Hoysrodt, L. H., Pine Plains, Dutchess Co.
Hume, Prof. Gilbert L., 261, Cumberland Street, Brooklyn.
Hunt, Edwin, Utica.
Hyatt, Prof. James, Stanfordville P. O., Dutchess Co.
Hyatt, J. B., Morrisania.
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Johnson, Miss Amy E., Poughkeepsie.
Keenerg, Mrs. N. B., Le Roy, Genesee Co.
Kellerman, W. A., Ithaca.
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McNeil, John A., Binghamton.
Merriam, Jas. S., 29, William St., New York.
Miller, E. S., Wading River, Suffolk Co.
Millington, Mrs. L. A., Glens Falls, Warren County.
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Court, Dr. I., Port of Spain, Trinidad.
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Gundlach, Juan (Johannes), Havana, Cuba.
Krebs, Henry, St. Thomas.
March, W. T., Spanishtown, Jamaica.
Morales, Dr. Sebastian Alfredo de, Calle de Velarde, No. 5, Matanzas, Cuba.
Presas, Manuel J., *ibidem.*
Sauvalle, Francisco Adolfo, Habana, Cuba.
Wilson, Nathaniel, Botanic Gardens, Bath, Jamaica.

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Zabriskie, Rev. J. L., *Spec. Fungi.* New Baltimore, Greene Co., N. Y.

Harbour, G. P. Iowa, should probably be, Harbour, J. P. (of Hall and Harbour's Rocky Mt. Collection), Macon Co., Ill.?
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Worley, George, Philadelphia. Pa.
Chamberlin, Prof. T. C., White Water, Wis.

§ **61. The Bulletin.**—The next number will begin the fifth volume of our little publication. When that volume closes we purpose issuing an index to the five volumes, so that that portion may be bound. Our subscribers will confer a favor by remitting 12 cents for postage, it being very inconvenient to send our unpaid mail to the general office. For the same reason station D is preferable for money orders.

We take this occasion to reiterate our hope that some of the more wealthy friends of science, to secure the permanency of the Bulletin, will endow it with a publishing fund of three thousand dollars.

§ **62. The Botanical Directory.**—We tender our sincere thanks to the many friends of the undertaking, who have, by their emendations and suggestions, enabled us to give a much better list of the active botanists of this part of the world than has yet appeared. We have considerably more than doubled the number in the Salem Directory, published some years since. Our list was based on that, and Mr. Putnam most kindly seconded our project. Some of the old names we have not been able to verify, but all the new ones, we are assured, are those of persons really interested in some branch of the science.

It has occurred to us that it would be well in the next edition to append a list of considerable general and special herbaria and libraries, to facilitate references in our wide territory. We solicit contributions of information on these heads, as well as corrections and additions for the Directory proper.

§ **63. Elliottia racemosa**, Muhl.—At the meeting of the Club, October 28, specimens of *Elliottia* were distributed. These specimens were collected by Mr. P. J. Berckmans, who has discovered a fine locality for the plant not far from his residence near Augusta, Georgia. As the fruit of *Elliottia* is still undescribed, Mr. Berckmans was requested to procure specimens if possible. He writes, on one of the last days of October, that some of the plants are still in flower, but that no vestige of fruit of any kind is to be found. The plant, through the kindness of Mr. Berckmans, will soon be in cultivation, and then we may be able to discover to what this lack of fructification is due. G. T.

§ **64. New Publications.**——1. *Prodromi Systematis Naturalis Vegetabilium, Historia, Numeri, Conclusio*, by Alphonso De Candolle (from the last vol. of the Prodromus), Paris, 1873.——2. *Reflexions sur les Ouvrages Generaux de Botanique Descriptive*, by the same, Geneva, 1873. The former of these pamphlets, as its name implies, is a brief account of the history of the Prodromus, of the share of the various contributors to the work, and an enumeration of the genera (5134, Composit. 911), and species (58975-Composit. 8561) described, a large proportion being newly determined in this great work of three generations. It was begun by Augustin Pyramus De Candolle, who published the first vol. in 1818. The elder De Candolle died in 1841. His son Alphonso carried on the work, with the assistance, as before, of other botanists, among whom was his son Casimir. This year (1873) the last (XVIIth) vol. was published, the whole embracing, after all, only the Dicotyledons. It was found necessary at this point to bring the undertaking to a close, "*ne tertiam botanicorum generationem occideret!*" The eight genera of Dicotyledons most numerous in species are: Solanum, 915; Euphorbia, 751; Senecio, 601; Croton, 461; Phyllanthus, 447; Erica, 429; Salvia, 410; Peperomia, 389. Next to the elder De Candolles, J. Muller and G. Bentham contributed most, and next to these, C. F. Meissner and Dunal. The last ten volumes contain, in fact, not a mere revision but a complete set of monographs. In the second pamphlet, the author reviews the general works of descriptive botany, which have already appeared, and offers some thoughts on what method is to be pursued hereafter. He recognizes the need of a more profound microscopical study of the structure and evolution of plants, which the advanced state of the science demands. He thinks that, by distributing the task among twenty-five botanists, the Phanerogams, estimated at 110,000 species, might be described in about fifteen or sixteen years. In twenty or thirty years from this time, we shall approximate so nearly to a complete knowledge of flowering plants (at least Dicotyledons) as to make a new description desirable. In the mean time he recommends the publication of good monographs. His father instituted a quinquennial prize of 500 francs for the best monograph of a genus or a family of plants. The next prize will be decreed in September, 1874. The Club is indebted to the distinguished author for these publications. ——3. *Botanical Contributions to the Proceedings of the Am. Acad. of Arts and Sciences*, by Asa Gray; 1873. (1). *Characters of New Genera and Species of Plants.* We have only room to notice: *Aquilegia leptocera, var. flava*, Gray, the golden Columbine of New Mexico, etc., recognized as a distinct species with the name *A. chrysantha*: *Pachystima Canbyi*, Giles Co., Va., an addition to our Eastern flora: *Hosackia Torreyi*, first gathered in the Sierra Nevada by Dr. Torrey: *Dirca occidentalis*, California. (2) *Notes on Compositæ and Characters of certain Genera and Species*, etc. Part 1. This is to a certain extent a commentary on Bentham's revision of the order.—— 4. *Contributions to American Botany*, by Sereno Watson. (1) *New Plants of Arizona*, from the American Naturalist. (2) *On Section Avicularia of the Genus Polygonum*, from the American Naturalist. *P. Torreyi* was gathered by Dr. Torrey in the Yosemite Valley. (3) *Revisions of the Extra-tropical North American Species of the Genera Lupinus, Potentilla and Œnothera*, from the Proc. of Am. Acad., 1873, with copious synonomy and references, an important contribution on very difficult subjects. Dr. Allen's variety *humifusa* (Vid. Bull. Vol. 1. No. 1.) of *Œnothera fruticosa* is maintained. Mr. Watson has taken a place among our leading botanists. The synonomy and references in this contribution present a model of thorough workmanship.——5. *Circulation of Sap in Plants*, by Wm. S. Clark, President of Mass. Agric. Coll., *Amherst Record*, Wednesday, Dec. 17, 1873; read at Fitchburg, Dec. 2nd. This is essentially an account of some highly interesting experiments and observations, carried on for months, night and day, on a great variety of trees and shrubs, particularly Maples, Birches, and Vines. We hope it will be published in a form better adapted for preservation and with fuller details. As for the *rationale* of the movement, it has been carefully studied by others, Draper in this country and Sachs, for example, in Germany (confer *Lehrbuch*, 1873), whose investigations are entitled to respect. It is stated that Prof. Agassiz was present at the reading of this paper and gave it his emphatic approbation. His voice was ever prompt to encourage any direct interrogation of Nature, and botanists, as well as others, will miss his powerful influence in favor of science. ——6. *The American Journal* for Nov. and Dec. contains as usual interesting botanical notices by Dr. Gray, particularly on the carnivoracity of *Sarracenia*, *Drosera* and *Dionæa.*——7. In *Nature*, Nov. 20th, Hermann Muller elucidates the remarkable varieties of Viola tricolor, in reference to self- or insect-fertilization.——8. *The American Naturalist* regularly devotes a portion of its pages to botanical notes. As cited above, two of Watson's *Contributions* were first published in it. In the December number the Publishers make an earnest appeal for more liberal support. The botanist needs to have some intelligence of what is doing in other branches of Natural History, and nowhere will he find it so accessible as in this handsomely printed and ably edited Monthly. If our readers will follow our advice, every one will subscribe to the *American Naturalist*, the *American Journal of Science and Art*, the *American Agriculturist* and *Nature.*

§ **65. Chenopodium leptophyllum,** Nutt.——In examining the Chenopodiaceæ in Prof. Eaton's herbarium, I was quite surprised to find a specimen of *C. leptophyllum*, collected by him at Absecom, N. J., "in maritimis." It is not very rare from Colorado to New Mexico and westward, but this is the only Eastern specimen I have seen. I would like to call the attention of Eastern botanists to their collections, to ascertain if it has been gathered elsewhere.

It is readily distinguishable—quite farinose, erect, slender, somewhat strict; the leaves all linear, entire and short-petioled; the flower and seeds smaller than in *C. album*, from which it may also be at once known by the pericarp's readily separating from the seed, on rubbing between the fingers, leaving it smooth and shining. I would like to see the species confirmed as an Eastern one.

I would also like to ascertain whether *C. Boscianum* (*C. album, var. Boscianum* of Gray's Manual, excluding synonym *C. Borlandieri*,) has been found north of Pennsylvania. It ranges west to Kentucky and Texas.

C. album, C. Boscianum and C. Borlandieri are all good species.

Botanic Garden, Cambridge, *Oct.* 27, Sereno Watson.

§ **66. Fertilization of the Yucca.**—Dr. Englemann communicated to; the *Bulletin* some months ago, the interesting fact that the flowers were so constructed that self-fertilization was well-nigh impossible and, further, that impregnation was accomplished through the agency of a small night-moth, *Pronuba Yuccasella.* In connection with this subject, it may be interesting to note that, when making botanical collections in the Rocky Mountains of Colorado in 1871, I found the *Yucca angustifolia* producing seed abundantly everywhere. During my explorations the past season, though the plants were frequently met with, I did not find one single pod of seed, though the plants had evidently flowered. True, I was not in the exact localities of the former year, and could not say positively the same plants seeding then were not seeding now, but I presume this was the case. Was the insect *Pronuba Yuccasella* absent last year?

THOMAS MEEHAN.

§ 67. New Species of Fungi, by W. R. GERARD. *No. II.*

Septoria Noli-tangeris. *n. sp.*—Spots roundish or oblong, brown perithecia minute, black, aggregated in centre of spots; spores thread-shaped, hyaline, .0006′—.0008′ long.

On leaves of *Impatiens Balsamina*, in gardens, September, Poughkeepsie.

Septoria maculosa. *n. sp.*—Spots roundish or elongated, whitish; perithecia black, very minute, densely crowded, spores thread-shaped, hyaline, .001′—.0016′ long.

On leaves of *Cuphea viscosissima*, Poughkeepsie, October.

Diplodia Thorniana. *n. sp.*—Perithecia globose, black, confluent, bursting through the fissured bark. Spores broadly oval, uniseptate, brown, .0008′—.001′x.00043′.

On dead branches of *Symphoricarpus racemosus*, in garden of S. Thorn, Esq., Poughkeepsie, July.

Peziza fusicarpa. *n. sp.*—Cup hemispherical, sessile, ochreous, externally clothed with minute hairs, margin involute. Hymenium at first ochreous, at length dark brown. Spores narrowly elliptical or fusiform, binucleate, 0015′x.0005′. Paraphyses clavate, at length filled with dark-brown granules.

Among mosses, July—September, Poughkeepsie.

Peziza pulchra. *n. sp.*—Cup sub-hemispherical, stipitate, externally smooth, pale cream-colored, disk orange-yellow; stipe attenuated downward. Spores oval, .0005′x.0003′.

Among decaying leaves, under pines, Poughkeepsie, August.

Hysterium magnosporium. *n. sp.*—Perithecia superficial, elliptic, longitudinally striate. Spores broadly elliptical, obtuse, dark-brown, 7-septate, with a large globose nucleus in each cell, .0023′x .0007′.

In this species the spores are not equally divided; the three septa forming the two middle cells are always much wider apart than the others.

On decorticated branches of hickory trees. Poughkeepsie.

Hypomyces Van-Bruntianus. *n. sp.*—Perithecia globose, densely crowded, pallid, hygrophanous, immersed, with a short, thick, exserted, obtuse mouth, subiculum white. Spores hyaline, oblong, shortly apiculate at the broad end and obtusish at the other, .0006 x.0002′. Asci cylindrical.

On pileus, stipe and gills of an unknown *Agaricus*, Poughkeepsie, October.

NOTE—In first series of Fungi, page 48, read *Peziza chrysophthalma*, not "*chrisophthalma.*"

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BULLETIN
OF THE
TORREY BOTANICAL CLUB.

Vol. V.] New York, January, 1874. [No. 1.

§ 68 **Regel on the Species of Vitis.**—E. Regel, in Garten Flora; for July 28, 1873, publishes a revision of the species of Vitis from North America, Northern China and Japan. Our grapes have always been a puzzle to botanists. and it may interest the readers of THE BULLETIN to see what disposition has been made of our species by one who studies them in comparison with those from countries nearly related botanically.

Taking the species as they are enumerated in Torr. & Gray's Fl. N. Amer., I give in brief Regel's views of them.

V. bipinnata, Torr. & Gray's Fl., I., p. 243, he has as *V. arborea*, Linn.

V. incisa, Nutt., in Torr. & Gray, is left undisturbed.

V. indivisa, Willd., is placed as *V. heterophylla*, var. *α*, *cordata*.

V. Labrusca, in its many forms, is disposed of in three varieties: *α*, *typica*, *β*, *æstvalis* and *γ*, *lanata*, the first two of which have several sub-varieties. In his arrangement *V. candicans*, Englmn., in Smithson. Contrib. III., 5, p. 32, and *V. mustangensis*, Buckl., in Proc. Phil. Acad., 1861, p. 451, would both be *V. Labrusca α*, *typica*, c, ficifolia, and our *V. æstivalis* Michx.; Torr. & Gray, is *V. Labrusca*, *β*, *æstivalis*.

V. æstivalis, Michx; Torr. & Gray: See *V. Labrusca*.

V. cordifolia, Michx: Torr. & Gray: See *V. vulpina*.

V. riparia, Michx.; Torr. & Gray, was by Dr. Gray in his Manual reduced to a variety of *V. cordifolia*, and Regel has it as *V. vulpina*, *ε*, *riparia*.

V. vulpina, Linn.; Torr. & Gray, Regel makes four varities, his var. *α*, *rotundifolia* includes our *V. vulpina*, and our *V. cordifolia* is his var. *β*.

The following is Regel's conspectus of our species, which will serve to show, in brief, the characters upon which his classification is based:

A. Inflorescence cymose, Petals spreading in flower, soon deciduous.

a. Cymes from opposite the leaves from the shoots of the current year.

* Leaves pinnate or pinnately compound.

1. **Vitis arborea**, L.

** Lower leaves three-lobed, upper three-foliolate.

2. **Vitis incisa**, Nutt.

*** Leaves entire or palmately lobed.

3. **Vitis heterophylla**, Thunb.

b. Cymes from the branches of previous years.

4. **Vitis inconstans,** Mig. (Japan and Himalayan sp.)

B. Inflorescence thyrsoid, paniculate or rarely racemose; petals cohering into a calyptra which falls at flowering.

a. Leaves more or less hirsute on the veins below, or rarely all smooth.

5. **Vitis vulpina,** L.

b. Leaves all, or at least the younger, densely tomentose on the lower surface.

6. **Vitis Labrusca,** L.

The wonderful tendency of our vines to vary under cultivation seems to belong to them in the wild state, and one who has but a small suite of specimens is likely to be much more positive in his determinations than those who have collections made from widely-separated localities.

Since the above was in type we learn from a note in the *Gardener's Chronicle* that Dr. Regel considers *Vitis vinifera* to be a hybrid between *V. Labrusca* and *V. vulpina*. He bases this opinion upon the fact that *V. vinifera* is not found in a truly wild state, but only as an escape from cultivation, and that these species are natives of the countries where the cultivated grape originated. It may be remembered that our grape growers who have experimented in the production of hybrids have found *V. vulpina* the most intractable of all in this respect.

G. T.

§ 69 **Two New Fungi from New Jersey.**—Some time ago Mr. J. C. Martindale sent me specimens of the common dodder, *Cuscuta Gronovii* Willd. that were much hypertrophied. Whole clusters of the flowers were swollen and elongated and parts of the stems were much enlarged. The affected clusters were of a paler color than the unaffected, though in some cases the process of decay had advanced so far that the diseased plants had become dark-colored and were supporting a crop of that almost omnipresent blackish mold, *Cladosporium herbarum* Lk. The inner tissues of the affected plants were all broken up, or destroyed, and the cavities filled by innumerable fungus spores, which in the mass were of a whitish color, but under the microscope were seen to consist of a pale or yellowish endochrome surrounded by a thick hyaline epispore. Here was the secret of the strange appearance of the dodder. It was nourishing a parasite within itself that was preying upon its vitals. I do not find the epidermis ruptured in any of the specimens, from which it is probable that the fungus spores must wait for their liberation and dissemination till the decay of the enclosing walls of their habitation takes place. This fungus is referable to the genus *Protomyces*, but is peculiar by reason of the abundant formation of spores in *all parts* of the affected plant.

Deeming it a new species, I take great pleasure in dedicating it to its discoverer.

Protomyces Martindalei *Pk.*—Host plant swollen, slightly discolored; spores abundant, produced in all parts of the host plant, always covered, globose, whitish in the mass, .0006—.0007 inch in diameter, epispore thick, hyaline.

Hab. *Cuscuta Gronovii* Willd. Near Camden, New Jersey, Autumn.

Another scarcely less interesting fungus has been received from Mr. J. B. Ellis. It is a Rœstelia on the leaves of *Pyrus arbutifolia* L. It is remarkable for its effect upon the leaf tissues, forming them into a much thickened and peculiar subiculum, and, in the language of Mr. Ellis, "often transforming a leaf into a tubercular mass after the manner of Podisoma on the red cedar." This subiculum is composed of crowded subcylindrical or cornute projections united at the base in a common mass, each one bearing a single peridium at its apex. I suspect that these projections may be less prominent in fresh specimens. They are strongly suggestive, by their form not their texture, of the elongated peridia of *Rœstelia cornuta* Tul., while the true peridia, that surmount them, are lacerated into such fine filaments as to be suggestive of the peristomal fringe seen on the capsules of some species of Barbula. I do not find this fungus described and, from the notes of Mr. Ellis and an examination of the dried specimens, have drawn up a description under the very appropriate name given by its discoverer.

Rœstelia transformans Ellis. — Spots red; subiculum much thickened, produced into tufts of crowded subcylindrical or cornute processes, red or brownish, sometimes transforming an entire leaf; peridia at the apices of the projections of the subiculum, finely lacerated, whitish, the cells linear, minutely papillose; spores subglobose, minutely roughened, brownish, .00065—.00075 inch in diameter.

Hab. Leaves of *Pyrus arbutifolia* L. Newfield, New Jersey. October. C. H. PECK.

§ **70. New Fungi**, by E. C. HOWE, Yonkers, N. Y.

1. **Puccinia curtipes**, n. sp.—Spots pallid or brownish; sori scattered, more or less confluent, roundish or oblong, surrounded by the broken epidermis. Spores light brown, elliptical apiculate, usually marked with delicate striæ. Pedicels short or wanting. Both sides of the leaves of *Saxifraga.*—May. June.

2. **Uromyces Peltandræ**, n. sp.—Spots yellowish brown; sori scattered, sometimes confluent, roundish or oblong; spores yellowish brown, oblong elliptical or subglobose, apiculate or tipped with an umbo. Pedicels short, often rudimentary but always present. Leaves of *Peltandra.*—Summer and Autumn.

3. **Podosphæria minor**, n.sp.—Conceptacles scattered or crowded; appendages 10–20, as long or a little longer than the diameter ot the conceptacles. Leaves of *Spiræa.*—Oct.

4. **Microsphæria Symphoricarpi**, n. sp.—Mycelium effused, subpersistent; conceptacles scattered or crowded; appendages 8–16, 2–4 times the length of the diameter of the conceptacles, 3–5 times dichotomous, ramuli divaricate, tips variable, often truncate, never curved, sporangia 4–6 with 3–5 spores. Leaves of *Symphoricarpus.* Nov.

5. **Microsphæria Menispermi**, n. sp.—Mycelium webby, effused, often evanescent; conceptacles scattered or gregarious, minute,

globose; appendages 10-20, about as long as the diameter of the conceptacles; sporangio 5–6 with 3-6spores. Leaves of *Menispermum.* Oct.—Related to *M. Alni* by its bicornute ramuli.

6. **Microsphæria Platani,** s. p.—Mycelium evanescent; conceptacles minute, globose, scattered; appendages 10–18, longer than the diameter of the conceptacles, tips of the ramuli strongly curved; sporangia 4–5 with 4–5 spores. Leaves of *Platanus.* Oct.—A distinct and beautiful species.

7. **Uncinula heliciformis,** n. sp.—Mycelium obscure; conceptacles scattered, minute, globose; appendages 15–30, once or twice the length of the diameter of the conceptacles, spirally coiled above, colored at base; sporangia 4–6 with 3–6 spores. Leaves of *Populus balsamifera.*—Oct.

§ 71. **Catalogue of Suffolk Co. Plants.**—Mr. E. S. Miller, of Wading River, and Mr. H. W. Young, Aquebogue P. O., Suffolk Co., N. Y., the enterprising and sagacious young botanists of the eastern end of Long Island, have here collected a list of 871 species of plants found in what is not usually considered a fertile portion of the State. More than nine-tenths of these have been collected by themselves within the last two or three years, and such is their activity that we have no doubt that they will continue to add largely to the number for some years to come, especially as there are many plants not yet on the list which might be expected to occur, as, to take for example a lacuna which presents itself in the very first order, *Actæa* and *Cimicifuga*, the former of which we are tolerably sure of having found at Miller's Place not very far from Wading River, while Cimicifuga abounds on this end of Long Island. On the other hand, they find quite a number of species never before found in the State, or very rarely, and some Southern forms. The latest discovery we believe is that by Mr. Miller of *Bromus tectorum*, L., a European grass never before reported in this country. Those who would like to study this Catalogue can obtain it from either of the editors for ten cents. We notice an error in the title, as the list does not include all the acrogenous species, ending with Lycopodiaceæ and omitting the Muscal Alliance.

§ 72. Botanical Directory.]

ADDITIONS.

Bibbins, R. K. Plattville, Kendall Co., Ill.
Briggs, S. A., Englewood, Ill. *Diatomaceae.*
Clarke, Mrs. —, Jamaica Plain, Mass.
Hadaway, Mr. —, Stony Brook, Suffolk Co., N. Y.
Mill, C. P., Estonville, Philadelphia, Pa.
Miller, F. A. (Miller & Sievers), San Francisco, Cal.
Munroe, H. F., 781, W. Jackson St., Chicago, Ill.
Page, Miss Ann L., Danvers, Mass.
Putnam, C. A., Salem. Mass. *Cult.*
Putnam, Francis, Salem, Mass. *Cult.*
Sears, J. H., Danvers, Mass. *Spec. Trees.*

CORRECTIONS.

Bebb, M. S., Ill. *Spec. Cult. Salices.*
Babcock, H. H., 11, 18th St., Chicago, Ill.
Darby, Dr, John, Millersburg. Ky.
Errington, Miss H. N., Clifton, Richmond Co., N. Y. *Spec. Californian.*
Errington, Miss G., N. Y. *Spec. Staten Island.*
Fuller, Chas. B., Me. *Marine Algae.*
Gillman, Henry, 80, Elizabeth St. West—not West Detroit.
Howland, Mrs. Francis, Englewood, N. J.
Johnson, Dr. H. A., Ill. Not active.
Knighton, Rev. Dr. Frederick, Cranbury, N. J.
Lyons, Dr. A. B., 54, Fort Street West—not W. Detroit.
Parker, Chas. F., 524, N. 2d St., Camden, N. J.
Putnam, F. W., not a botanist, but the name is kept in on account of the *Naturalists' Agency* which is of interest to botanists.
Rauch, Dr. J. H., Ill. Not active.
Smith, Dr. George, Darby, Delaware Co., Pa.
Tatnall, Ed., Del.
Warne, H. A., Oneida, N. Y.

§ 73. New Localities.—Miss Mary C. Reynolds reports having found *Lygodium palmatum*, Swartz, the last season, in Hunter Greene Co., N. Y. We have not heard of any other locality in our State. Mr. I. H. Hall sends us a specimen of *Gentiana Saponaria*, L., from Cresskill, N. J., a species new to our catalogue.

§ 74. Additions to the Bryology of the United States, by Chas. Mohr.

NO. I.

Notes on the Bryology of Oregon, with description of two new species, by Prof. Dr. KARL MUELLER, Halle.

THE mosses of Oregon are yet but little known, and the amount of our knowledge appears still smaller when compared with the great progress made in the last ten years regarding the bryological flora of California, chiefly due to the zeal of Mr. Bolander and the researches of Prof. Lesquereux. By them an entirely new botanical region has been laid open, full of the highest interest, not only from the acquisition of manifold new forms, but also from the development of important and peculiar facts relating to the distribution of species on this continent. What has been brought to light from Oregon has also added much to our knowledge of the mosses of the western coast of the United States, and points to a field promising rich rewards to the investigator in the discovery of forms not only new to this country, but new to science, and characteristic of that part of the Pacific region.

Notwithstanding the large preponderance of species Oregon has in common with Europe and the number of exclusively northwestern species it shares with other parts of the Pacific coast, every collector since the time of Menzies has made additions of new forms, many peculiar to that State, and much more is to be expected from the efforts of future explorers. This has been evinced anew by the discovery of three new species in a small collection of mosses made by the Rev. R. D. Nevius, near Portland, Oregon. I handed the same over to Dr. K. Mueller, for examination, and he had the kindness to send me the manuscript of his description of two of the same, to be published in one of our journals. The description of the third he has deferred until the arrival of more perfect specimens. Recognizing it, undoubtedly, as a proper species, he called it Hypnum *pseudo-sericeum.*

1. **Mnium** (*Eumnium*) **Nevii**, C. Müller, *n. sp.* Hermaphroditum, cæspites laxi inferne fusco-tomentosi subhumiles; *caulis simplex* inferne fusco-radiculosus gracilis, *apice clavato* solum imbricato-foliosus virescens; *folia caulina erecto-conferta regulariter se tegentia crispatula vel margine undulata*, madore reflexo-patula et carnosula, e basi decurrente serie cellularum angustarum unica formata breviter cuneata late ovata vel orbiculata, acumine brevi acuto plerumque reflexo terminata, *dentibus elongatis plus minus erectis vel reflexis ciliformibus fimbriata*, nervo in aristulam excedente, cellulis ubique parvis hexagonis regularibus viridissimis chlorophyllosis, limbo lato flavido; perich, pauca parva lanceolato-acuminata inte-

gerrima, limbo e cellularum serie unica efformato apice solum cincta, e cellulis elongatis laxis apice hexagonis paucis densioribus reticu, lata; thecæ in pedunculis flavidis flexuosis pendulæ cylindraceo—oblongæ basi incrassatæ; peristomium normale. Opercula et calyptræ ignota.

Patria.—Portland, Oregon, vere 1873, Rev. Dr. R. D. Nevius.

Notis accuratius designatis primo visu cognoscendum. *Mn. cuspidatum* affine facile distinguitur; ramis sterilibus reptantibus, fertilibus laxe et valde patule foliosis, foliis tenuissime limbatis breviter dentatis fructibusque turgide ovalibus.

Note. Lately a few fine specimens with operculate capsules not quite matured have arrived which admit the following description of the operculum: *Operculo hemispherico-conico*, mamillato, pallide flavido ore aurantiaco annullato, (C. Mohr)—thus giving the description complete in all essential parts.

2. Grimmia (*Dryptodon*) **Nevii,** C. Müller, *n. sp.* Dioica laxe cæspitosa atro-viridis vel nigricans; caulis *longiusculus gracilis inferne foliis difractis nudiusculus*, per innovationem parce et breviter ramulosus, *ramulis supremis incurvulis* foliosis; *folia caulina* appresso imbricata vel parum patula, e basi parum decurrente oblonga *late ligulacea obtusata*, valde concava, *margine* infero plus minus revoluto integerrima, *apiculi dentibus nonnullis remotis brevibus angulate eroso-denticulata*, nervo latiusculo canaliculato in strias veluti dissoluto ante apicem evanido percursa, e cellulis carnosulis viridissimis parietibus undulatis instructis quadratis papillosis chlorophyllosis areolata; perich. semivaginantia oblongo-lanceolata acuminata integerrima plicatula, exteriora evanidinervia, interiora enervia, omnia valde concava e cellulis tenuibus pellucidis rectangularibus angustis reticulata; *theca in pedunculo brevissimo curvulo majuscula ovalis badia submacrostoma, dentibus obtusis rubris levibus in crura duo cohœrentia fissis crasse articulatis carnosulis.* Cætera ignota.

Patria.—Portland, Oregon, vere 1873, Rev. Dr. R. D. Nevius.

Planta mascula foemineæ simillima, andrœciis nonnullis turgidis coloratis secus caulem dispositis, antheridiis magnis clavatis eparaphysatis, foliis perigonialibus e basi late ovata laxe reticulata aurantiaca breviter oblongis vel ligulaceo—obtusatis angulate denticulatis, interioribus brevissime acuminatis obtusiusculis integris, omnibus evanidinervibus. Quoad foliorum formam *Grimmiæ aciculari* affinissima, sub hæc species primo intuito differt: pedunculo elongato cellulisque foliorum dolioliforme-rotundis.

Scanty as the material at our command is, at this day, for exhibiting the features of the bryological flora of Oregon, it will not be without interest to trace the same as far as it is possible, by the data which the valuable *Catalogue of Pacific Coast Mosses*, by Prof. Lesquereux, offers.* One of its most striking and prominent characters is its close relation to the bryology of Europe; another, not less remarkable, is the almost total want of connection with the Eastern part of this continent. The absence of

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* Memoirs of California Academy of Science, Vol. I, Part 1.

any exclusively Eastern North American genus and the scarcity of species typical of that region in Western North America, have, years ago, been pointed out by the above author as one of the most curious and interesting facts relating to the geographical distribution of mosses on this continent.*

Two species of Hypnum, *H. orthocladum* and *H. lætum*, are known at present as the sole representatives of typical Eastern North American forms.

According to the enumerations in that work, of the two hundred and sixty-five species known from the Pacific coast of North America, one hundred and twenty-two are mentioned as having been found in Oregon. Included are those collected in Vancouver's Island (which is to be considered within the limits of the same botanical province) by Lyall, and the few species from the British possessions by the older English collectors, which may safely be expected to be met with in the mountainous and northern parts of the State. Adding the *Fontinalis antepyretica*, var. *Neo Mexicana*, Sulliv and Lesq., lately found by Dr. Barret in the Hood river, O., and the three new species introduced here, the whole number of species known at present from Oregon would be one hundred and twenty-six (eighty-four acrocarpous and forty-two pleurocarpous). Of this number, eighty-six, or nearly seventy per cent., are European species (sixty-seven acrocarpici and twenty pleurocarpici). Fifty-three of the same are also common in Eastern North America, mostly of a wide distribution in the temperate and colder zones of the globe. Eighteen are common to Europe and California, and fifteen European species have yet been found on this continent solely in Oregon, the greatest part typical European forms belonging to the more temperate zones of Europe, as, *v. i.*: *Dicranum albicans*, *D. strictum*, *Leptotrichum flexicaule*, *Barbula princeps* (*B. Mulleri*, *Brch*), *Tayloria serrata*, *Bryum longicollum and Mnium medium.*

The number of exclusively Western North American species is *thirty-seven*, or thirty per cent (sixteen acrocarpous and twenty-one pleurocarpous).

Of these, the following nineteen can be regarded as peculiar to the moss flora of Oregon. *Barbula rubiginosa*, *Grimia* (Dryplodon) *Nevii* (inter Racomitrium). *Zygodon cæspitosa* from Vancouver Island, *Orthotrichum consimile and O. Columbianum* from the same locality, *Mnium Nevii*, *Bryum Oreganum*, *Dichelyma uncinatum*, *Hookeria anomala*, *Hypnum laxifolium* *H. reniolifolium*, H. apocladum, H. lentum, H. declivum, H. Oreganum, H. turfaceum, H. robustum, H. collinum, Schw. (sterile from California) H. pseudo-sericeum, *n. sp.*, C. Müll.

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* Transactions of the American Philosophical Society, Phila., June, 1862.

The following table will exhibit the distribution of the mosses found in Oregon more clearly:

Genera found in Oregon with number of Species in each Genus.	In comm'n with Europe, 86 Species.			With Eastern North America exclusively, 2 Species.	Ex. W. N. American, 38 Spec.			
	Europe and E. N. Amer.	Europe and N. W. Am. exclusive of Oregon.	Europe and Oregon.		Oregon and other W. N. America.	Oregon.		
1. Weissia 2	1	1						
2. Dicranum 10	5	2	3					
3. Fissidens 1	1							
4. Pottia..............1			1					
5. Ceratodon...........1	1							
6. Leptotrichum.......1			1					
7. Trichostomum......2		1			1			
8. Distichium..........1	1							
9. Desmatodon.........1		1						
10. Barbula..............4	1	2				1		
11. Grimmia.............6	2	2	1		1			
12. Racomitrium.......5	2	1	1			1		
13. Hedwigia...........1	1							
14. Braunia 1					1			
15. Zygodon 2	1					1		
16. Ulota.................1			1				Acrocarpous.	84
17. Orthrichum.........5	1	2				2		
18. Tetraphis...........1	1							
19. Eucalypta..........2	2							
20. Tayloria.............1			1					
21. Funaria 1	1							
22. Mnium...............6	1		1		3	1		
23. Bryum..............14	9	3	1			1		
24. Aulacomnium......2	2							
25. Meesia:..............2	2							
26. Bartramia...........3	2				1			
27. Timmia..............1	1							
28. Atrychum...........1	1							
29. Pogonatum.........2					2			
30. Polytrichadelphus..1					1			
31. Polytrichum....... 2	2							
32. Fontinalis..........1	1							
33. Dichelyma..........1						1		
34. Neckera.............2					2			
35. Alsia.................2					2			
36. Antitrichia.........1	1							
37. Hookeria............1						1		
38. Hypnum 34	10	3	4	2	5	10	Pleurocarpous.	42
Whole number of Species..........126	53	18	15	2	19	19		126

† Trichostomum corniculatum found also in Kamtchatka.

‡ B. rubiginosa N. W. America, by Douglas.

Terms—One Dollar per annum beginning with the January number. For the Botanical Directory alone, 30 cents. Back volumes on hand.

Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

§ 75. Variations.—I saw in the Bulletin a notice of an Iris which changed its color. I have in my little garden a root of *I. Germanica*, a *fleur-de-lis* of the white variety. There are no blue ones in the neighborhood that I know. Four years ago one of the outer divisions of the perianth of one flower was dark blue. The next year one whole flower was dark blue, two other flowers on the same stalk were white. In the following year all the flowers on one stalk were blue, and all the flowers on the other stalks white. This year it bore only white flowers.

I am led to question the permanence of single variations (but not the permanence of the *forms* of variation) from having been unable to procure the same variety for two seasons in succession in the same place. For instance, our common Sensitive Fern varies into var. *obtusilobata*, but the variation is not permanent. I often find it, and once found a large bed of it, in every possible intermediate form. The next year going to look for some Adder-tongue ferns growing near, I looked carefully for the *obtusilobata*, but not one appeared. Some remarkable variations of *Aspidium acrostichoides* I have found the second year perfect forms of our finest evergreen fern. The Adder-tongue fern too varies very much. On the high cold sand plains of North Elba it is two or three inches high and perfectly orbicular. In Elizabethtown, Essex County, I found it ten inches high, ovate and very fine. Here it is quite plenty in swamps and pastures, but is so slender and acute as to be difficult of detection among the grass. L. A. M.

§ 76. Apocynum.—I have been much interested in your notes on Apocynum. It grows abundantly about us and I have made it a point to observe it. I have repeatedly found insects caught by the flowers, mostly small coleoptera; they were all dead when I observed them. The flowers are visited by the common rose beetle among other insects. This beetle is very destructive to many of our wild flowers this year—the Azalea viscosa, Ceanothus Americana, and Pogonia ophioglossoides being all subject to its ravages. In reading Darwin's "Loves of the Flowers" I find the following, which may be of interest in the above connection. "In the Apocynum androsæmifolium the anthers converge over the nectaries, which consist of five glandular oval corpuscles surrounding the germ, and at the same time admit air to the nectaries at the interstices between each anther. But when a fly inserts its proboscis between these anthers to plunder the honey, they converge closer, and with such violence as to detain the fly, which thus generally perishes. This account was related to me by R. W. Darwin, Esq., of Elston, in Nottinghamshire, who showed me the plant in flower, July 2d, 1788, with a fly thus held fast by the end of its proboscis, as was well seen by a magnifying lens, and which in vain repeatedly struggled to disengage itself, till the converging anthers were separated by means of a pin; on some days he had observed that almost every flower of this elegant plant had a fly in it thus entangled; and a few weeks afterwards favored me with his further observations on this subject.

"'My Apocynum is not yet out of flower. I have often visited it "and have frequently found four or five flies, some alive, and some "dead, in its flowers; they are generally caught by the trunk or "proboscis, sometimes by the trunk and a leg; there is one at present only caught by a leg; I don't know that this plant sleeps, as "the flowers remain open in the night; yet the flies frequently make "their escape. In a plant of Mr. Ordoyno's, an ingenious gardener "at Newark who is possessed of a great collection of plants, I saw "many flowers of an Apocynum with three dead flies in each; they "are a thin bodied fly, and rather less than the common house-fly; "but I have seen two or three other sorts of flies thus arrested by the plant, August 12, 1788'." W. W. BAILEY.

PROVIDENCE, R. I.

§ 77. **Sandwich Island Mosses.**—Collected by H. MANN and W. T. BRIGHAM. Named by W. S. SULLIVANT, (May, 1872.)

1. **Dicranella exilis,** (*n. sp.*)—Caule 2–3 lineari, foliis erecto-patentibus rigidis ex ovato longe sensim anguste acuminatis, cellulis oblongis uniformibus lævibus, costa lata ad apicem et ultra continua, capsula erecta oblongo-elliptica, operculo æquilongo obliquo, annulo speciosa, pedicello 3–lineari, peristomio dicranoideo, calyptra generis.—Kuala Mountains, Oahu.

2. **Dicranum præmorsum** (*n. sp.*)—Robustum elatum tomentoso-contextum; foliis erecto patentibus longe lineali-lanceolatis convolutis apice extremo lobato-truncatis ibidemque grossius serratis, cellulis angustis interruptis, illis alaribus subquadratis brunneis, costa tenui subindistincta dorso superne lenissime serrata, perichætialibus alte vaginantibus filiformi-acuminatis, capsula elongato-cylindracea erecta stricta leniterve curvula, operculo subulato-rostrato, peristomio et calyptra generis.—Mountains of West Maui.

3. **Trematodon longicollis,** *Rich.*—Waiulua Mountains, Oahu.

4. **Campylopus flexuosus,** var:—valleys of West Maui.

5. **Campylopus exasperatus,** *Brid.*—Highlands of Hawaii.

6. **Ceratodon purpureus,** *Brid.*—Hualalui, Hawaii, 6,000 ft. alt.

7. **Leucobryum gracile** (*n. sp.*)—A *Leucobryo minore* simillimo distinctum foliis paulo minoribus, pedicellis gracilioribus longioribus, capsulis brevioribus magis cernuis distinctius strumosis, etc.—Woods, Oahu

8. **Leucobryum falcatum,** *C. Müll*—Oahu.

9. **Encalypta ciliata,** *Hedw.*—Hualului, Hawaii, 6,000 ft. alt.

10. **Racomitrium lanuginosum,** var.—Mauna Loa, Hawaii 5.000–1,300 ft. alt.

11. **Macromitrium Reinwardtii,** *Schwgr.*—Woods, Oahu.

12. **Macromitrium piliferum,** *Schwgr.*—On rocks, Oahu

13. **Funaria hygrometrica.** *Hedw.*—Hualului, Hawaii, 6,000 ft. alt.

14. **Bartramia rigida,** var.—Woods, Hilo, Hawaii.

15. **Bartramia Marchica,** var.—Caulibus ramulisque minus gracilibus, foliis oblongioribus citius acutatis, costa vix excurrente, pedicello breviore, etc.

16. **Bryum argenteum,** *Linn.*—Hualulai, Hawaii, 6,000 ft. alt.

17. **Mnium giganteum,** *Sshwgr.*—Oahu!

18. **Rhizogonium spiniforme,** *Bruch.*—Woods, Hilo, Hawaii.

19. **Rhizogonium spiniforme,** var. foliis brevioribus, etc.

20. **Rhizogonium spiniforme**, var. elatum ?—Woods, Oahu.
21. **Rhacopilum tomentosum**, *Brid*.—Woods, Oahu.
22. **Rhacopilum tomentosum**, var.? an species nova.—Woods, Kona, Hawaii.
23. **Mniadelphus paradoxus**, *C. Müll.*—Oahu.
24. **Meteorium trichophorum**, *Mont*.—Woods, Oahu.
25. **Meteorium illicebrum**, *Nees.*—Hawaii.
26. **Neckera dendroides**, *Hook.*—Oahu.
27. **Hypnum plumosum**, *Linn.*—Hualui, Kauai.
28. **Hypnum gracilisetum**, *Hoh. & R.*—Oahu.
29. **Hypnum pungens**, *Hedw.*—Kona, Huanai, Oahu.
30. **Hypnum Bonplandii**, *Hook. ?*—Oahu.
31. **Hypum Draytoni**, *Sulliv.*
32. **Hypum Wilkesianum**, *Sulliv.*—Oahu.
33. **Hypnum paucipilum** (*n. sp.*)—Dioicum *minusculum* delicatulum nitidum; caule repente pinnato, foliis oblongo-lanceolatis longe filiformi attenuatis decurvo falcatis tenuissimis, a medio ad apicem serratis basi brevissime bicostellatis, cellulis angustissimis, alaribus 2–3 utrinque vesiculiformibus, perichaetialibus erectis, capsula oblonga annulata horizontali, pedicello gracilescente, operculo longe rostrato, calyptra cuculliformi pilis paucis longis conspersa.—Oahu.
34. **Hypnum Pickeringii**, *Sulliv.*—Oahu.
35. **Hypnum molliculum**, *Sulliv.*—Oahu.
36. **Hypnum apertum**, *Sulliv.*
37. **Thuidium cymbifolium**, *D. & Mlk.*—Woods, Kona, Hawaii.
38. **Thuidium delicatulum**, *Hedw.*

§ 78. **New Publications.**—1. *Flora Fossile dell' Etna*, per Francesco Tornabene, Casinese Professore di Botanica alla Regia Universita di Catania, ed ivi Direttore del R. Orto Botanico. Catania, 1859. Small quarto, pp. 147, with 10 lithographic plates. Presented to the Club by Dr. C. H. F. Peters, director of the Litchfield Observatory of Hamilton College (and, by the way, the original copy presented to Dr. Peters by the author). This is an account, principally in Italian, of the fossil flora of Mt. Etna, the technical descriptions of the plants and of the plates being in Latin; with an introduction setting forth the general scope of the work, a preliminary chapter on the origin of the rocks and earths, and another interesting chapter on the botanical stations and distribution of plants on the mountain; and on the process of formation of the fossil flora. A general abstract of these introductory chapters would be very instructive, if space would permit.

The author accompanies his descriptions of the fossil plants with observations upon the kindred living species, and seems to have neglected no source of information regarding his subject,, drawing largely upon the observations of foreign travelers and geologists.

Naturally the fossil flora on the sides of a still active volcano differs materially from that of old extinct terrains; as the deposits of lava, stones and ashes on its slopes suffer such varied disintegrations, and allow such multiplied effects to be produced by the percolations of water. Consequently, much of the fossil flora has both near relatives and living representatives.

Among the fossil plants enumerated are *Pistacia Terebinthus*, L., and var. *ovalifolia*, Tornabene, *P. lentiscus*, L., *P. Sicula*, Tornabene, *P. Bossoni*, Tornabene, *Prunus spinosa*, Duhamel, *Rubus Dalmaticus*, Tratt (*R. fruticosus*, var. *Dalmaticus*, De Candolle et auctores alteri), *R. tomentosus*, Willd., *Pyrus communis*, L., *Myrtus communis*, L., and var. *Italica*, L., var. *Romana*, L., *M. latifolia*, Tornabene; *Vitex agnus-castus*, L., and var. *latifolia*, Tornabene; *Laurus nobilis*, L.

2. *The Circulation of Sap in Plants*, by W. S. Clark, Pres. Mass. Agric. Coll., Boston, 1874. This lecture was noticed in our Dec. No. It is now published in pamphlet form, with fuller details.

3. *The Flora of Chicago and Vicinity. Supplementary.* H. H. Babcock, reprinted from the *Lens*; about fifty additional species or varieties are here added, the most interesting of which are the willows, particularly *S. cordata*, var. *glaucophylla*, and *S. adenophylla*, Hook.

4. Schedule of Prizes offered by the Mass. Hort. Soc., for the year 1874, Boston.

5. *The Eclectic Ruralist*, Vol. II., No. 1. Rochester, February, 1874.

6. Mr. George C. Woolson, 245, Broadway, N. Y., has had printed for his own convenience an index to Torrey and Gray's Flora, Vol. II., which he will send to any one who may desire it, on receipt of a stamped envelope.

§ 79. Additions to the Bryology of the United States, by Chas. Mohr.

NO. II.

Description of two new species of mosses from the Southern United States, by Prof. Dr. KARL MUELLER, Halle.

Bartramia (*Philonotis*) **Mohriana**, C. Müller, *n. sp.* Dioica? *caulis robustiusculus* ubique densifolius, inferne fusco-radiculosus, ramulis, crassiusculis inequalibus plerumque brevibus et *strictis* nonnullis coronatus, breviusculus; *folia caulina undique inserta, madore et siccitate patenti-patula strictissima*, sordide lutescentia, *latiuscula, perfecte* lanceolata longe acuminata aristatula, longitudinaliter indistincte plicata, basi sæpius cavernosula, igitur irregulariter concava, margine angustissime revoluta, apice dense serrulato-denticulata inferne ob papillas prominentes nodulosa, nervo profunde canaliculato in aristam excedente furcata, *e cellulis angustis elongatis linearibus pellucidis laxis reticulata igitur tenuiter membranacea et flaccidula, valde punctato-papillosa;* perich. caulinis similia sed basi

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latiore magis ovata laxissime reticulata, papillis ad parietes cellularum transversales indistinctis grossis singulis obtecta; theca in pedunculo flexuoso rubro robusto plantulam longitudine æquante parum obliqua magna globosa plicatula, operculo cupulato umbonato minuto; peristomium duplex normale: dentes externi latolanceolati valde et robuste trabeculati fusci striatuli, internis magis lutei asperuli breviores.

Patria Louisiana, Donaldsonville, ad truncos putridos in sylvis opacis, mensi Decembris. *C. Mohr.*

Species excellentissima; statura humiliore robusta, foliis strictissimis nunquam secundis lanceolatis laxe reticulatis maxime papillosis prima scrutatione a *B. fontana* et *B. calcarea* distinguenda, cum alia nunquam confundenda. *Bartramia Schlumbergeri* Mexicana quoad habitum aliquantulum affinis. B. radicalis gracilitate maxima aliisque notis multis ac habitatione terrestri palustri toto cœlo differt.

Hypnum homalostegium, C. Müller, *n. sp.*—Monicum; cæspites lati humiles sordide virides duriusculi rigiduli; caulis repens, sed ramulis creberrimis brevibus erectis vel curvulis dense aggregatis tenuibus firmiusculis simplicibus pseudo-pinnatus; folia caulina dense imbricata indistincte secunda, madore caulem subjulaceum turgescentem tenuem sistentia, e basi cordata latiuscule ovata breviter acuminata concava, margine erecto obsolete denticulata, nervis binis brevibus, cellulis minutis indistinctis tenuibus angustissime ellipticis pallidis tenerrime papillosis, alaribus ad alas solum impresso-revolutas quadratis massa grisea repletis; perich. anguste lanceolato-acuminata longiuscula secunda concava, longitudinaliter plicatula, enervia, leviuscula, lutescentia; theca in pedunculo ascendente flavido-rubro horizontalis minuta asymetrico-cylindracea, medio valde constricta basi gibbosa vel strumosa, macrostoma badia, operculo minuto e basi planiuscula brevissme apiculato recto; peristomii dentes valde prominentes callum angustissimum sistentes madore conniventes, externi rubri valde cristati, interni lutei læves latiusculi carinati imperforati, ciliis singulis latis brevioribus pallidioribus interjectis.

Patria Alabama, West-Fowlriver, secus littora maritima ad corticem arborum: C. Mohr, vere 1871.

Hypno adnato proximum, sed hæcce species primo momento differt: ramis multo tenuioribus nunquam turgide julaceis, foliis caulinis integerrimis e cellulis multo majoribus distincte ellipticis lævissimis coloratis, perich. late ovatis acuminatis, theca longius pedunculata multo majore robustiore e collo angustiore curvato-oblonga nec gibbosa nec strumosa medio nunquam constricta et operculo magno e basi turgide conica rostellato. Primo intuito formis gracilioribus *Hypni cespitosi* simile, sed cellulis alaribus vesiculiformibus flavidis carens.

§ **80 Catalogue of Suffolk Co. Plants.**—Mr. H. W. Young calls our attention to an oversight on our part. In criticizing the title of this Catalogue we had forgotten that Dr. Gray in his *Structural and Systematic Botany*, which is the standard for this country, divides Lindley's Class of Acrogens into two, Acrogens and Ano-

phytes. According to this system, therefore, the title of the Catalogue is correct.

§ **81 Books Wanted.**—Hooker's Flor. Bor. Am.—Torrey & Gray's Flor. Bor Am.—Torrey's Flora of New York (with colored plates).—Gray's Genera. Please address, stating price, H. H. Babcock, 11 18th Street, Chicago, Illinois.

§ **82 President of the Royal Society.**—It may be unknown to some of our readers that Dr. Joseph Hooker has been chosen President of this Society, the first time a botanist has been so honored we believe since the time of Sir Joseph Banks. This distinction bestowed upon the chief botanist of Britain by his scientific compeers may be regarded as their protest against the indignities to which he was subjected by a member of the late administration.

§ **83. Botanical Specimens by Mail.**—Mr. Tuthill has sent us the following:

"Post Office Dept., Appointment Office,
Washington, D. C. *March* 11, 1874.

Sir:—Your letter of February 24th is received. Botanical specimens may be sent in the mails as 'cuttings;' postage one cent for each two ounces or fraction thereof; packages limited to four pounds, wrapped so as to admit examination and unaccompanied by any writing in addition to the address.

Very respectfully, J. W. Marshall,
First Asst. P. M. General.

Frank H. Tuthil, Esq. Kalamazoo, Mich.

§ **84. Sandwich Island Hepaticae**, collected by H. Mann & W. T. Brigham, and named by C. F. Austin.

1. **Dendroceros Clintoni**, (*n. sp.*)—Fronde sublineari undulata crispata tenui minute areolata subseriatim puncta, involucro cylindrico sesquilineari punctato primum acuto glandis hyalinis appressis vestito, capsula trilineari fere sessili molli, sporis majusculis fuscis lævibus plerumque obtuse angularibus, elateribus breviusculis pallidis unispiralibus. "Sandwich Islands, *Mann & Brigham.*" Herb. Clinton.

2. **Marchantia crenata**, (*n. sp.*)—Fronde rigida carinata circa unciam longa et 2–3 lineas lata, apice bilobo dichotomove, subtus densissime radiculosa squamosa, supra planiuscula valde porosa, cyphis purpureis circularibus margine crassa ciliato-dentatis, receptaculo femineo majusculo convexo subeccentrico margine crenato subtus squamis brevibus instructo, involucris brevibus inæqualibus fimbriatis, perianthis (immaturis) circa 6-lobatis, pedunculo subunciali parce squamoso: receptaculum masculinum hand visum. In woods, Hilo.

3. **Marchantia Innovans**, (*n. sp.*)—Fronde parvula irreglariter divisa planiuscula subtenui adspecta eporosa resinifera magis minusve purpurea subtus anguste carinata, carina squamis brevibus purpureis instructa, laciniis linearibus oblongove–linearibus; fructu (immaturo) ex apice innovationis ventralis parvæ exorto, pedunculo barbato, receptaculo femineo parvo subcrenato subtus barbato. Hanalei, Kauai.

4. **Dumortiera hirsuta.** (*Swartz*) *Nees.*—Mountains west of Maui

5. **Dumortiera trichocephala,** (*Hook*) *Nees.*—Kaula Mountains, Oahu.

6. **Aneura (Pseudaneura) pectinata,** (*n. sp.*)—Dioica; planta fœminea iterum decomposita, fronde crassa obscura supra convexa saturate viridi serie singula cellularum minutarum hyalinarum marginata, ramis, 1–2 uncialibus magis minusve pectinatim dissectis laciniis difformibus inæqualibus nonnullis bi-trifidis apice sæpe attenuatis radicantibusque patentissimis in humido erectiusculis, calyptra scabra sesquilineari oblongo-cylindracea subclavatave, apice fusco papuloso, capsula elliptica ovali-oblongave: masc. minus distincte marginata ramulis brevissimis instructa, antheridiis in ramulorum apice profunde bifido biseriatis.—Oahu. Also communicated by *Dr. Hillebrand* (1866). The male plant occurring with *Anthoceros vesciculosus*, from Dr. Hillebrand.

7. **Aneura (Pseudaneura) multifidus,** (*Linn.*) *Dum.* On the fronds of *A pectinata.*

8. **Aneura palmata,** (*Hedw.*) *Lindberg.*—Oahu.

9. **Symphogyna semi-involucrata,** (*n. sp.*)—Fronde stipitata suberecta valide nervosa late undulata integerrima obtusa, involucro dimidiato brevi lacero, calyptra 3 lineas longa apice pistillidia sterilia fimbriata, capsula 2 lineas longa bivalva, valvulis apice cohaerentibus.—Oahu.

10. **Plagiochila adiantoides,** (*Swartz*) *Ldbg.*—Oahu.

11. **Cephalozia connivens,** (*Dicks.*) *Dum.*—With *Symphogyna semi-involucrata.*

12. **Frullania apiculata,** *Nees.*—Oahu.

13. **Frullania squarrosa,** *Nees.*—Oahu.

14. **Frullania Kunzei,** *L. & Lg.*—Oahu.

15. **Frullania arietina,** *Tayl.*—With *Dendroceros Clintoni.*

16. **Lejeunia (Phragmicoma) Mannii,)** (*n. sp.*)—Caule brevi vage ramoso, foliis imbricatis oblique ovalibus ovatisve valde convexis decurvis obtusis integerrimis, areolis majusculis versus marginem sensim decrescentibus, intercalaribus nigris obscuris, lobulo subrotundo inflato integro, amphigastriis magnis flabelliformi-rotundis (sæpe. magis latis quam longis), perianthio in ramulo longo terminali compresso-pyriforme ventre bi-dorso unicarinato alatove, angulis cristato-dentatis, involucri foliis parum majoribus subdentatis; colore subfusco.—Oahu.

17. **Lejeunia subsquarrosa.**—Phragmicoma subsquarrosa, *Aust. Proc. Phila. Acad. Dec.* 1869. (An Ptychanthus species?)

18. **Radula Mannii,** (*n. sp.*)—Caule rigido 1–2 uncias longo cum foliis circa 1¼ lin. lato pinnato vel iterum decomposito, ramulis breviusculis sub-decurvis patentibusve complanatis obtusis, foliis oblique ovali-rotundis subconvexis valde obtusis integerrimis toto margine anguste inæqualiter recurvis, lobulo magno apice lato semicirculari late obtuseque 1-2 plicato, margine interna caulem obtegente vel superante, areolis minutis subovalibus difformibus: flores et fructu ignoti.—Oahu.

19. **Radula pallens** (*Swartz*) *Nees.*—Among mosses, comm *James.*

15. **Sendtnera gracilis,** *Nees.*—Oahu.

16. **Sendtnera juniperina,** (*Swartz*) *Nees.*—Oahu.

20. **Mastigobryum cordistipulum,** *Ldbg.*—Oahu.

21. **Mastigobryum parvistipulum** (*n. sp.*)—Caule procumbente subdichotomo stolonibus brevibus instructo, foliis viridibus dissitiusculis oblongo-linearibus valde falcatis patentissimis subconcavis margine ventrali integerrimis subcrenatisve parum recurvis, apice lato oblique truncato inæqualiter tridentato, dentibus brevibus obtusiusculis nonnullis denticulatis, areolis magnis subquadrangularibus crassiusculis in centro pellucidis medialibus subovalibus basilaribus subinflatis cæteris minoribus subquadratis, amphigastriis minutis patentibus valde distantibus quadrato-transversalibus liberis obsoleteve connatis apice valde inæqualiter inciso- ciliatove-dentatis; fructu ignoto.—Oahu.

Differs from *M. tridens* in the more falcate leaf with a broader more obtusely toothed apex, in the more squarrose amphigastria, etc.

22. **Mastigobryum Brighami,** (*n. sp.*)—Caule subgracili flexuoso subdichotomo valde flagellifero, foliis laxe imbricatis subdecurvo-patentibus subfalcatis leniter convexis ob cellulas magnas subinflatas ovali-rotundas versus basin subvittatis, areolis cæteris majusculis subquadratis, apice lato truncato dentibus breviusculis acutis sinibus obtusissimis subæqualiter tridentatis, basi haud dilatata, amphigastriis minutis subovatis appressis distantibus obscure connatis, apice eroso subdentatove.—With *M. parvistipulum.*

Differs from *M. parvistipulum* in its imbricated shorter leaves more equally toothed at the apex and with the cellules towards the base and ventral margin shorter; also in the more numerous flagellæ, appressed subentire amphigastria, etc. *M. tridens, Nees*, has larger leaves decidedly narrowed at the apex and more acutely tridentate, areolæ larger, etc.

23. **Pleurozia subinflata.** Physiotium subinflatum, *Aust.*—Oahu.

24. **Pleurozia conchæfolia,** (*Hook.*)—Oahu.

§ **85. Sandwich Island Hepaticae,** collected by Dr. Wm. Hillebrand, named by C. F. Austin.

1. **Plagiochila oppositifolia,** (*n. sp.*)—Caule tenui subsimplice fertili brevi sterili longiore frondiformi, foliis dissitis exacte oppositis utrinque in cristam minutam perbrevem connatis, illis in caule fertili elongato-obovatis sublinearibusve, subconvexis, apice subbifido, margine superiori versus apicem parce spinulosa inferiori subintegerrima, illis in caule sterili dissitoribus magis explanatis angustioribus, margine intergerrima fere plana, apice oblique uni-vel-inæqualiter bispinoso, perianthio ob innovationes laterali brevi campanulato, margine inferiori alata subincisa, apice profunde inciso-ciliato, foliis involucralibus subovatis incisis spinulosisve.

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2. **Jungermania piligera,** *Nees.*—Var.
3. **Jungermania robusta,** *Aust.—Proc. Phila. Acad.* Dec. 1869.
4. **Jungermania rigida,** *Aust—l. c.*
5. **Jungermania coriacea,** *Aust.—l. c.*
6. **Jungermania callithrix,** *L. & G.*
7. **Jungermania nana,** *Nees?*
8. **Jungermania (Gymnanthe?) Bolanderi,** *Aust. l. c.*
9. **Cephalozia connivens,** *Dicks.*
10. **Calipogeia bifurca,** *Aust. l. c.*
11. **Lepidozia Sandvicensis,** *Ldbg.*
12. **Mastigobryum cordistipulum,** *Ldbg.*
13. **Mastigobryum minutum,** (*n. sp.*)—Caule prostrato elongato tenuissimo, foliis valde distantibus anguste obcuneatis subfalcatis suberecto-patentibus et patentibus apice oblique obtuseque bidentatis dentibus subdivaricatis breviusculis acutiusculis, areolis majusculis medialibus ovalibus cæteris subrotundis paulum minoribus illis in margine (serie singula) confertis transversim vel suboblique compressis, amphigastriis minutis (diametro caulem æquantibus) ovato-subquadratis appressis.—With other Hepaticæ.

There are a few male spikes on the stems, these are very large, considering the minute size of the plant, of a round-ovate figure and compactly leaved.

14. **Pleurozia subinflata.** Physiotium subinflatum, *Aust. l. c.*
15. **Pleurozia conchaefolium,** (*Hook.*)
16. **Sendtnera juniperina,** (*Swartz*) *Nees.*
17. **Sendtnera gracilis.** *Nees.*
18. **Sendtnera tristicha,** *Aust.—l. c.* (An S. gracilis var. ?)
19. **Lejeunia subsquarrosa.** Phragmicoma subsquarrosa *Aust. l. c.* (An Ptychanthi species?)
20. **Lejeunia elongata.** Phragmicoma elongata, *Aus. l. c.*
21. **Lejeunia Mannii,** *Aust.*
22. **Lejeunia cucullata,** *Nees.*
23. **Lejeunia longifolia,** *Mitt?* On *Dumortiera denudata.*
24. **Frullania Kunzei,** *L. & L. G.*
25. **Frullania squarrosa,** *Nees.*
26. **Aneura (Pseudaneura) pectinata,** *Aust.*
27. **Aneura (Pseudaneura) multifida,** (*Linn.*) *Dum.*
28. **Aneura palmata,** (*Hedw.*) *Lindberg.*
29. **Steetzia cylindrica,** (*n. sp.*)—Differt a *S. Lyellii*; inflorescentia dioica, perianthio longiore cylindrico et capsula angustiore. Calyptra about two-thirds as long as the perianth, smooth, bearing about a dozen sterile pistillidia near its summit. (Male plant not seen.)
30. **Anthoceros vesciculosus,** (*n. sp.?*) Fronde crassa fusca venoso-nervosa opaca subpinnatifido-lobata lineari flabelliformi apice magis minusve dilatata abrupte incrassata regulariter venosa valde vesiculosa ob cavitas maximas valde inflatas rugosa sublamellato-cristata, margine crenata cristatave, involucro circa 3 lineas longo subcylindrico vel subfusiformi nervoso-striato sublamelloso parce glanduloso apice tridentato, capsula unciali et longiore nigra, sporis nigris minutissimis minutim muriculatis, elateribus fuscis tenuis-

simis longissimis subflexuosis teretis solidiusculis opacis haud articulatis (sine fibra spirali).

Remarkable for the venose and vescieulose frond, and for the very long and slender terrete jointless elaters. The veins of the frond anastomise and divide its substance up into large cavities. Rootlets numerous, long, granulose. Capsule about as large as in *A. laevis*, slightly curved or straightish; the valves more or less twisted when dry, without stomata. Spores about half as large as in *A. punctatus*, and the elaters many times longer than in that species, and of a different structure. Involucre of a solid texture.

31. **Marchantia polymorpha,** *Linn.*
32. **Dumortiera hirsuta.** (*Swartz*) *Linn.*
33. **Dumortiera denudata,** *Mitt.*
34. **Plagiochasma cordatum,** *Ldbg?*

§ 86. Dr. Torrey and Torrey's Peak.—As some misapprehension exists as to Dr. Torrey's ascent of the peak named in his honor, we made inquiry of Mr. John H. Redfield, whose reply we give below. A note from Miss M. Torrey is to the same effect.

"I was not with Dr. Torrey on the occasion of the ascent to which you refer, having parted company with him in California in the end of August [1872]. But soon after his return home I had from him, and from his daughter who accompanied him, the full particulars of the affair; and as I had myself ascended Gray's Peak on the 30th July previous, the topography was sufficiently known to me to make their account quite intelligible. Their party, consisting of the Doctor and his daughter, and a Norwegian lady, related to Prof. Brock, of Norway, with a physician from Georgetown, whose name I have forgotten, and perhaps some others, started from Georgetown, for the purpose of ascending *Gray's* Peak. It was late in the season for the ascent,* and some of their friends in Georgetown counselled them not to attempt it. They proceeded, however, without any difficulty until they reached the shanty near the Baker Mine—a height of nearly or quite 12,000 feet, and on a plantation in full view of the two rocky cones named by Dr. Parry, *Torrey's Peak* and *Gray's Peak*. By this time the weather had become very cold, the wind also being keen and strong. The rarity of the air, too, at that height, told so severely upon the Doctor's respiration, that he found it impracticable to proceed further. He accordingly entered the shanty, built a fire, and had a *warm lunch* ready for the rest of the party, who, meanwhile, proceeded on horseback, and succeeded in reaching the summit of Gray's Peak. By the time they had returned to the shanty rain set in, which soon became snow; and long before they reached Georgetown all the neighboring mountains were covered with a fleecy mantle.

"So that though the Doctor did not literally ascend Torrey's Peak, yet he saw both it and its fitly-named fellow-peak.†

---

* **Late in September.**

† Gray's expression in his Memoir is—"*Stood upon the flank* of the snowy peak to which his pupil had given his (Torrey's) name;" which, in a sense is true, since both peaks are culminating points of the same ridge on which, Baker's Mine is situated.

I am not aware that Torrey's Peak (known in the vicinity by the later name of Mount Irwin) has been ascended, though it apparently presents no special difficulties; and Gray's Peak is usually selected for ascent, because a comparatively easy horse-trail has been prepared to the summit. When on Gray's Peak, I ascertained by a pocket-level that Torrey's Peak is a little the higher, though the difference is slight, probably 50 or 100 feet, and I think this is confirmed by other observations."[‡]

§ **87. Bromus Tectorum.**—In the January number of the *Bulletin* I notice, under the head of "Catalogue of Suffolk County Plants," a remark with reference to *Bromus tectorum.* About eight years ago, I detected a species, new to *this* region, which by comparison with an authentic specimen of the *B. tectorum* from Germany, preserved in my herbarium, I have regarded as identical with that plant. Having submitted it to the late Dr. William Darlington for inspection, he informed me that some time before, he had received specimens from a correspondent in Germantown, near Philadelphia. He at once referred it to the species above noticed.

Mine was gathered in the suburbs of our town, confined to one spot, its introduction, no doubt, adventitious. By the extended improvements of our town, the locality has been broken up. I enclose a small portion, which may prove sufficient for identification with the Suffolk County plant. HALLIDAY JACKSON.

WEST CHESTER, Pa.

[The small specimen sent corresponds very well with *B. tectorum* in the Torrey Herbarium.]

§ **88. Synopsis of the Flora of Colorado,** by Thomas C. Porter and John M. Coulter. This is one of the "Miscellaneous Publications," relating to the U. S. Geological survey of the Territories now in progress under the charge ot the Department of the Interior. It is a work of 180 pages, and is not a mere enumeration of plants, but, for all the species not described in the readily accessible "Manual" of Doctor Gray and the "Flora ot the Southern States" by Dr. Chapman, the descriptions are quoted, thus saving the student from the necessity of referring to many reports and works not usually to be found in a private library. We notice in an advanced sheet of the "American Journal of Science" for May, that Prof. Daniel C. Eaton makes some rather severe strictures upon the manner in which credit is given in this work. We hope that Prof. Porter, who is apparently responsible for the literary portion of the work, may give a satisfactory explanation of what appears to have been an unfortunate inadvertence.

§ **89. Desmodium.**—It may interest the readers of the Bulletin to know that Mr. Albert Commons has discovered another locality for the very rare Desmodium humifusum, Beck, in the south-east corner of Newcastle County, Delaware. Here, as in the Salisbury, Maryland, locality (now destroyed), the plant is completely prostrate, ramifying in every direction from the central root. It flowers plentifully, but fruits rarely. Can it be a hybrid between D. rotundifolium, D. C., and one of the erect species?

[‡] Whitney's measurement gives Gray's Peak .... 14,145 feet.
Torrey's " .... 14,192 "

Mr. Commons has also found D. ochroleucum, M. A. Curtiss, near Felton, Delaware—the most northern locality yet known. This is a well-marked species, always distinguishable from its trailing allies by the light green color of the leaves, its ovate leaflets strongly reticulate-veined, as are the always twisted divisions of the loments, and its ochroleucous flowers. It fruits abundantly and is a rank grower. W. M. C.

§ 90. **Two Lichens of Oregon.**—The region proved to the experienced collector, Mr. Elihu Hall, less interesting as regards Lichens than California, and he was able to add but little to what was already known. The two plants now to be briefly described are, however, new to us.

Sticta Oregana (*sp. nova*)—thallo coriaceo-membranaces laciniato-lobato lacunoso-reticulato viridi-glaucescente, laciniis elongatis apice rotundatis sinuato-incisis margine crenato-lobulatis mox dissectis subtus inter papulas albas reticulatim brunneo-tomentosis; apotheciis sparsis mediocribus (latit. 2-4 millim.) margine thallo concolore demum excluso. Sporæ 6-8^{nae} in thecis, e fusiformi aciculares, 4-loculares, incolores, longit. 0,044-75 millim., crassit. 0,006-9 millim.

Upon trunks of trees, Oregon, *E. Hall.*

This fine accession to our Flora is not without a certain general resemblance to *S. anthraspis*, Ach., also peculiar to the West Coast, but belongs to the marked section of which *S. pulmonaria* is the type; differing from this no less in its *ensemble* than in its spores. Whatever the real rank of *S. linita*, Ach., it is scarcely better comparable with the present.

Rinodina Hallii (*sp. nova*)—thallo crustaceo tenui contiguo rimoso cinerascente, hypothallo nigro limitato; apotheciis biatorinis mediocribus (latit. 0$^{mm.}$, 7-1$^{mm.}$, 2) adnatis plano-convexis, margine obtuso integerrimo fusco discum fusco-nigrum opacum demum turgidum cingente. Hypothecium incolor. Sporæ octonæ in thecis, ellipsoideæ, biloculares, fuscæ, longit. 0,019-30 millim., crassit. 0,009-15 millim., paraphysibus bene distinctis.

Upon bark, Oregon, *E. Hall.* Upon Redwood, and Oak, California, *H. N. Bolander.*

R. sophodes v. confragosa is the most distinguished form of this genus on the Western coast, occurring on rocks and on the earth, where the fruit attains to the largest size perhaps as yet noted (the width exceeding 2$^{mm.}$) and also on trees. From this the present is seen at once to differ in its biatorine exciple, and generally Lecideeine aspect. The disk, in several specimens, is more or less distinctly white-pruinose. EDW. TUCKERMAN.

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Local Herbarium, 3, E. 33d St.—Editor, 224, E. 10th St.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P.M.

Vol. V, No. 5.] BULLETIN OF THE TORREY BOTANICAL CLUB. [New York, May, 1874.

§91. On some new North American Musci.—C. F. AUSTIN.

1. **Bruchia Hallii** (*n. sp.*)—Plantæ humiles, gregariæ, fusco-virides; caule 1-3 lineari subsimplici gracili inferne microphyllo, foliis lævissimis late ovatis erectis inferioribus appressis superioribus sensim subabrupteve augentibus acutiusculis vel breviter acuminatis integerrimis, reti inferiori laxiusculo pellucido oblongo-hexagono vel subrhomboideo superiori angustissimo breviter fusiformi, costa mediocri versus apicem subexpansa percurrente vel leniter excurrente, capsula in pedicello recto exserta una cum collo breviter pyriformi-elliptica longiuscule rostrata, collo pro genere magis parvo in pedicellum sensim transeunte, calyptra lævi mitriformi (subcucullatave) basi lobata ad tertiam partem capsulæ vel ultra descendente: inflorescentia generis: statura *Br. flexuosæ.*

Near Houston, Texas, *E. Hall.*

2. **Bruchia Texana** (*n. sp.*)—Statura et habitu *Br. Hallii*; differt tamen caule breviori, foliis inferioribus angustioribus acuminatis flexuosis superioribus multum longius et abruptius acuminatis acumine angustissimo canaliculato siccitate flexuoso, costa superne multum magis dilatata, reti minore e cellulis infra medium folii angustioribus et longioribus supra hoc in illas minutissimas brevissimas minutim granulosas subraptim transeuntibus formato, capsula paulum brevius tenuiusque rostrata, collo crassiori longiori in pedicellum abrupte transeunte.

Near Houston, Texas, *E. Hall.*

3. **Gymnostomum Rauanum** (*n. sp.*)—Caulibus gregario-cæspitosis brevissimis fastigiatim divisis, foliis caulinis satis viridibus lineali-lanceolatis mucronato-acutis subcanaliculato-concavis basi excepta opacis sublævibus margine planis integerrimis, costa subdepressa excurrente, capsula in pedicello tenui mediocriter longo exserta ovali tenuissime texta siccitate irregulariter striato-costata truncata macrostoma, operculo valde deciduo in siccis lato valde depresso oblique rostrato, in humidis angustato conico et fere recte rostrato, annulo rubro partim ad operculum ac partim ad os capsulæ adhærente, (peristomio nullo): inflorescentia ut in *Weisia viridula.*—Weisia viridula, var. gymnostomoides, *James in Herb. Porter* (fide James).

On clay banks, about Bethlehem, Pa. *E. A. Rau, Esq.*, and *Rev. F. Wolle.*

This species has much the general appearance of small forms of *Weisia viridula*, but is readily distinguished by the total absence of a peristome, broader annulus, more delicate texture of the capsule, which is also shorter and wider mouthed, and by the less concave leaves plane on the margins, etc.

4. **Fissidens Closteri,** *Aust. Ms.*; *Sulliv. Icon. Suppl. ined.*—Plantæ exilissimæ gregariæ acaules; foliis minutissimis (circa 2 paribus) in gemmula appressis ovatis, laminad uplicaturam vix excedente acuta minute apiculata apice subserrata, reti laxiusculo subquadrato, costa latiuscula tenui subdiffusa, capsula in pedicello $\frac{1}{2}$-$1\frac{1}{2}$ lin. longo tenuissimo pallido exserta ovali ovatave siccitate (ore lato excepto) valde constricta, annulo valde inconspicuo cum operculo deciduo, operculo elongato-conico; peristomio generis; inflorescentia *F. exilis.*

On stones along woodland rivulets, on the Palisades, near Closter, New Jersey.

On account of the minute size of all its parts, this is probably the most inconspicuous of all known mosses, being invisible to the naked eye (in its native ravines) except with the aid of a strong and favorable light. It differs from *F. exilis*, its nearest ally, in its much smaller size and shorter leaves, the blade almost (or often quite) obsolete. Calyptra conic, covering only the rostrum of the opiculum, very slightly fissured on one side at the base. Teeth of the peristome when dry widely spreading at the base, erect above the middle; when moist inflexed and forming a cone over the mouth of the capsule; sublanceolate, split nearly to the base into two unequal segments, papillose, the articulations below close and indistinct.

5. **Meesia Macouni** (*n. sp.*)—Caule perbrevi dense cæspitoso innovante fastigiatim ramoso radiculis rufo-brunneis et purpureis dense et minute scabris instructo, foliis e basi augustata oblongo-lanceolatis subacuminatis planiusculis integerrimis versus apicem subserratisve laxissime (ut in *Funaria* et *Amblyodonte*) areolatis, areolis medialibus oblongis basilaribus elongatis illis versus marginem sensim augustatis (ut foliis submarginatis videatur) superioribus subrhomboideis, costa valida basi dilatata in apicem producta, perichætialibus brevioribus solidioribus brevius acuminatis crassius costatis, capsula cum collo (pro genere breviusculo) subpyriformi siccata subincurva pachyderma, peristomii dentibus pro genere longis (fere ut in *Amblyodonte*) erectis obtusis integris, processibus quam dentibus longioribus, pedicello 2-3 unciali, paraphysibus compluribus valde clavatis: cætera desunt.

In the Peace River Country, British Columbia, *Macoun* (1872.)

Remarkable for the very lax texture of the leaves, which are also broader than in our other species; also for the longish teeth of the outer peristome. It appears to connect the genus *Meesia* with *Amblyodon*. My specimens are too old, and the peristome is somewhat destroyed, yet it is sufficiently well preserved to show this relationship. I have not been able to detect any antheridia. Among the plants were a few very slender stems of a male plant having small distant distinctly margined bryoid leaves, and apparently belonging to some Bryum. The buds resembling male flowers each contained a cluster of minute white fusiform worms instead of antheridia and paraphyses!

6. **Leskea (Thedenia?) Wollei** (*n. sp.*)—Plantæ parvæ demissæ intricato-cæspitosæ vage et subpinnatim ramosæ et ramulosæ; cæspite superne fusco-viridi inferne magis minusve ochracei; foliis diversiformibus in caule primario late deltoideo-ovatis abrupte longe acuminatis, acumine valde flexuoso, illis in caule secundario augustioribus brevius acuminatis, ramulinis rigidiusculis ovatis haud vel breviter acuminatis valde concavis imbricatis siccitate subrugulosis, omnibus integerrimis cellulis crassioribus brevioribus confertioribus marginatis costa lata difformi brevi vel longiuscula simplici vel inæqualiter bicrura instructis, reti e cellulis mediocribus rhombeis illis ad basis augulos (et in marginem usque ad apicem) quadratis formato: floribus et fructu haud visis.

Niagara Falls, *Rev. Francis Wolle;* Lake Superior region, *Prof. John Macoun.*

Plant of about the size and of much the general appearance of *Hypnum adnatum*, Hedw. The position, shape and areolation of the branch leaves are also much as in that species, but they are more concave, and have the areolation shorter. The stem-leaves are shaped somewhat as in *Hypnum hispidulum*, Brid; but they are more concave, and have a more abrupt, longer, and more flexuose point and entire margins.

Differs from *Thedenia Suecica*, as described in Schimper's Synopsis, mainly in the somewhat rigid and more or less costate leaves.

7. **Thuidium scitum** (*Beauv*).—*Aust, Musc. Appalach.,n.* 300.—Hypnum scitum, *Beauv. Brid. Bryol. Univ.* 2, p, 575; *C. Mull. Synop.* 2, *p.* 488; *Sulliv. Icon. Musc. p.* 155, *t.* 99, *ex parte; Sulliv. & Lesqx, Musc. Exsic. ed.* 2, *n.* 409, *ex. parte.*—(Thuidium Appalachianum, *Aust. Ms. olim.*)

Plantæ mediocres, depresso-cæspitosæ, colore atro et subglauco-viridi. Caulis 1–3 uncias longus prostratus simpliciter pinnato-ramulosus. Folia caulina late cordato-triangularia longe tenuiter apiculato-acuminata, basi late sulcata; ramulina minora cordato-ovata breviter acuminata laxius incumbentia; utraque concava erecto-patentia; costa validiuscula subpellucida ultra medium evanida; reti e cellulis subrotundis minutissimis chlorophyllosis minutissime papillosis formato; paraphyllia numerosa multiformia; perichætialia lævia solidiuscula profunde sulcata valide costata erecto-appressa sensim longe acuminata integerrima vel versus apicem obsoletissime denticulata; reti e cellulis augustissimis linearibus rectis formato. Capsula brunnea subcylindrica (elongato-elliptica) erecta vel leniter curvula siccata sub ore parvo constricta, basi acuta; operculo elongato-conico conicove-rostrato; annulo solido triplici persistente; peristomio leskeoideo albescente, dentibus angustissimis rectis vel siccatis leniter flexuosis, processibus quam dentibus brevioribus e membrana augusta exortis angustis sublinearibus rectis opacis granulosis aperte e serie singula cellularum exstructis haud carinatis, ciliolis binis imperfectis nullisve; sporis viridibus nonnunquamve luteolis. In Octobri et Novembri maturescat.

On the base of trees along the borders of a swamp, near Closter, New Jersey; very rare. (First found by me in 1864 on the base of a tree, about half a mile south of Closter.) (This tree was cut the following winter.) I again found it in 1872 on a tree about 80 rods south-west of the former station, along the east side of John Westervelt's woods. The following species is found on many of the trees in the same woods, in close proximity to this.

8. **Thuidium æstivum** (*n. sp.*)—Statura ramificatione circumscriptione foliorum et habitu *Th. sciti;* recedit tamen foliis perichætialibus tenuioribus minus profunde sulcatis subscabris apice minus obsolete denticulatis, costa tenuiore, reti breviore diversiformi (rotundo ovali et oblongo), caulinis minus valide costatis acumine magis flexuosis, ramulinis densius granuloso-papillosis. Capsula oblonga macrostoma straminea subhorizontali textura laxiore, ore obliquo, basi obtusiore, operculo majore alte convexo abrupte ob-

tuse et brevius rostrato magis deciduo basi submarginato, annulo pallido deciduo, peristomio hypnoideo pallido luteolo, dentibus latioribus conniventibus in humido incurvis (apice recurviusculo exceptis), processibus multum latioribus e membrana latiore exortis incurvis lævibus hyalinis carinatis carina pertusis, ciliolis 2–3 perfectis subæquilongis, sporis luteolis: in Julio maturescat.—Thuidium scitum, var. æstivum *Musc. Appalach. n.* 301.—Hypnum scitum, *Sulliv. & Lesqx. Musc. Exsic. ed.* 2, *n.* 409, *ex parte.*

On the base of trees in woods, New Jersey to Canada and Ohio; common. Inner perichætial leaves long and narrowly pointed, but less gradually so than in *Th. scitum.* Pedicel of the same color as the capsule (pale yellow), and, as in all the Thuidia, obscurely scabrous. Peristome with the processus and ciliolæ nearly or quite as long as the teeth. Paraphyllia multiform. Color of the plant green, glaucous green, or often yellowish green.

9. **Plagiothecium Passaicense**, *Musc. Appalach. n.* 362.—Dioicum, minutulum, cæspitulosum; fl. masc. polyphyllo eparaphysato antheridiis 1–3 instructo, fl. fœm. paraphysibus magis numerosis brevibus et pistillidiis 12–30 instructo, capsula in pedicello brevi tenui erecta minuta siccitate turbinata collo distincto estriato instructa, peristomii dentibus angustis fere rectis erectisque, ciliolis imperfectis, foliis perichætialibus pluribus late ovatis abrupte acuminatis ecostatis estriatis integerrimis vel apice eroso-denticulatis, foliis caulinis triangulari-lanceolatis subcanaliculato-concavis basi subtruncatis margine integerrimis planis angustissime recurvisve, reti e cellulis longis angustis subfusiformibus basilaribus valde brevioribus nec inflatis nec decurrentibus instructo.

Prof. Macoun, of Canada, has recently sent me fine fruiting specimens of this interesting little moss, found growing on an old stump near Belleville. It resembles both *Pl. pulchellum* and *Pl. latebricola*, but is smaller than either (being the smallest of the genus). Besides it differs from the former in its inflorescence, much shorter and slenderer pedicel, shorter erect capsule with the outer peristomal teeth much narrower and erectish when dry, and with the ciliæ of the inner peristome imperfect, perichætial leaves less convolute and not plicate, stem-leaves narrower, etc.; from the latter it differs chiefly in the texture of the leaves, which are also neither decurrent nor furnished with inflated cellues at the base.

10. **Hylocomnium Flemmingii** (*n. sp.*)—Robustum pallidum; caule subsimplici erecto rigido apice valde obtuso, foliis e basi cordata late lanceolato-ovatis obtuse acuminatis valde flexuoso-squarrosis subfalcatis profunde sulcatis versus apicem minutissime papillosis nitidis bicostatis ad basis angulos minute angusteque subquadrato-areolatis, margine minute confertim serrulata ad basin late reflexa et ciliis minutis subdecompositis ornata, costis distantissimis tenuibus vix ad medium productis basi ciliatis; floribus et fructu ignotis.

Vancouver's Island, 1872, *John Macoun.*

Remarkable for the obtuse apex of the leaf, with minute decompound ciliæ on the margins and costæ at the base. The costæ are wholly distinct at the base throughout, wide apart and nearly parallel.

V

Vol. V, No. 6.] BULLETIN OF THE TORREY BOTANICAL CLUB. [New York, June, 1874.

§ 92. **Charles Frederick Meisner** – as the announcement made by the bereaved members of his family inform us, died at Basle, on the second of May, in the seventy-fourth year of his age.

For the details of the life of this excellent botanist and estimable man we must wait until the tributes to his memory arrive, which his associates in his native Switzerland and in the chief centres of science in Europe are sure to offer. Our present information is scanty. Pritzel, in the new edition of his Thesaurus, usually records the date and place of birth of botanical authors, but they are omitted in the present instance. We believe, however, that he was a native of the Swiss Canton, in which his professional life was passed. The orthography of his name is somewhat ambiguous. In the title pages of his works and in the signature to his letters, it is *Meisner.* In the family circular announcing his decease it is *Meissner.* The interesting Melastomaceous genus dedicated to him by his friend and preceptor, De Candolle, is *Meisneria.* In the new Genera Plantarum of Bentham and Hooker, it takes the form of *Meissneria.* That he was a pupil of De Candolle, at Geneva, appears from the preface to his earliest work, the Monograph of the Genus *Polygonum.* This was published in the year 1826, and he had already taken his degree of Doctor in Medicine. Not long afterward he was called to the chair of Botany at Basle, which he had held for more than half a century. His largest and his main independent work is his *Plantarum Vascularium Genera secundum Ordines Naturales digesta*, in two folio volumes, published between the years 1836 and 1843. In one volume the genera are *tabulis diagnosticis expositæ;* the other volume is a commentary, with very copious references. His most important publications in systematic botany, however, were contributed to the periodicals of the day, such as the *Linnæa*, and to the great works of his friends De Candolle and Von Martius, in which he was a most valued collaborator. For De Candolle's *Prodromus* he elaborated his favorite order, *Polygonaceæ* (the *Eriogoneæ* excepted), and the equally large orders *Proteaceæ, Thymeleaceæ*, and *Lauraceæ*, as well as the small order *Hernandiaceæ* For the *Flora Braziliensis* he worked up the same orders, also the *Convolvulaceæ* and the *Ericaceæ.* With these creditable and laborious productions his botanical career came to a close, nearly a dozen years ago, his health and powers having failed him. Yet in his declining years he was able to give attention to the very large and valuable herbarium which he had formed, and over which he lovingly lingered. As none of his children took to botany, his herbarium naturally became a chief solicitude. He corresponded with the writer of this notice and with Dr. Torrey upon the subject, deploring the probable necessity of its being broken up and dispersed in detachments after his decease, in case it remained in Europe. His anxieties were promptly allayed, and his remaining years made happy, through the purchase of this important herbarium, essentially upon the owner's own terms, by a member of the Torrey Club, who generously added it to the Torrey Herbarium Dr. Torrey lived to see a portion of this collection in its new home, and Prof. Meisner, a year later, had the great satisfaction of knowing that the whole was safe in its chosen destination before he also went to his rest in a good old age. A. G.

§ 93. **First Field Day of the Club.**—The club having decided to hold field days this summer, a small company explored the Ramapo Mountains, near Sufferns, Rockland Co., on Saturday, May 23d. The following interesting plants were found, *Clematis verticillaris*, DC.; *Epigæa repens*, L.; *Corydalis flavula*, Raf.; *Staphylea trifolia*, L.; *Polygala paucifolia*, Willd.; *Prunus Americana*, Marshall; *P. pumila*, L.; *Mitella diphylla*, L.; *Asarum Canadense*, L.; *Habenaria viridis*, R. Br.; *H. bracteata*, Reich.; *Orchis spectabilis*, L.; *Uvularia perfoliata*, L. The last named species was larger than we have ever before seen, viz., two feet high, with flowers an inch and a half long; the granular-roughened sepals and sharp-pointed anthers showed it to be *U. perfoliata* and not *U. grandiflora*, as we at first thought it. G. C. W.

§ 94. **New Fungi,** by W. R. Gerard. *No. III.*

Sphœria rostrospora, (*n. sp.*) — Perithecia orbicular, densely crowded, seated on a blackish, compact, fibrous stroma; asci cylindrical; spores ovate, binucleate, dark-brown, .0006′x.0002′, furnished at each extremity with a hyaline beak.

Encircling the base of a stalk of *Inula Helenium*.

New Paltz Landing, Ulster Co., September.

Patellaria similis, (*n. sp.*)—Receptacles coriaceous, sessile, crowded, smooth, black; margin swollen, disk concave; spores elliptical, triseptate, nucleate, hyaline, .0006′x.0002′.

On dead branch of oak (*Quercus rubra*), Poughkeepsie.

This would seem to come near Cooke's *P. parvula* (which I have not seen), but differs in many respects according to the description in the "Hand-book."

Patellaria dispersa, (*n. sp.*)—Receptacles black, sessile, scattered, margined; asci cylindrico-clavate; spores varying from subpyriform to clavate, 4-8 septate, the cells filled with nuclei, .0014′x.0006′ (at the broad end), pale brown.

Widely scattered over the bark of red cedar (*Juniperus Virginiana*).

New Paltz Landing, Ulster County.

Hysterium fibrisedum, (*n. sp.*)—Perithecia linear elongated or oval, obtuse at the ends; lips closed; spores obovate, 7–8 septate with one long, longitudinal division, hyaline, often slightly bent.

Seated in long parallel series on the fibres of old wood of Robinia, Poughkeepsie. Scarce; I have found but a single specimen thus far.

Hysterium vixvisibile, (*n. sp.*)—Perithecia very minute, oblong-elliptic, black, opaque, without striæ; lips swollen, aperture slightly gaping; spores oblong, triseptate, pale brown, .0005′—.0006′ x .0002.′

The perithecia are so minute as to appear like mere specks to the naked eye. The plants are extensively scattered over the bark, lying in all directions.

Poughkeepsie; on bark of dead, unknown branch.

Peziza Cucurbitæ, (*n. sp.*)—Cups sessile, when moist waxy, scutellate, disk pale tan-color, margin entire: when dry contorted, somewhat horny, and disk dark purple-brown; spores simple, oval, .0004′ long.

On dried rinds of squash (Cucurbita) in company with *Phoma Cucurbitacearum.* Poughkeepsie, September.

Helminthosporium clavatum, (*n. sp.*)—Flocci densely fasciculate; simple, septate, light-brown; spores elongated, clavate, 10-septate about from .001′—.003′ long.

Forming roundish black spots on the under surface of the leaves of *Asclepias incarnata.* Poughkeepsie, Autumn.

Septoria Salliæ (*n. sp.*)—Spots large, roundish, pallid, circumscribed by a reddish-brown line: perithecia minute, black, scattered; spores simple, rod-shaped, hyaline, bent, .0007′ x 0001.′ On leaves of *Acer saccharinum.* Poughkeepsie, Autumn.

§ **95. New Localities.**—Dr. Gray, in *American Journal* for April, states that Howard Shriver, Esq., of Wytheville, Va., finds *Pachystigma Canbyi* together with *Carex Fraseriana* in the vicinity of that town. (Professsor Wood has procured specimens for the Club.) Mr. H. D. Keeler, of Jacksonville, Fla., finds *Pavonia spinifex*, Cav., in dry, open woods, at Mayport (mouth of St. John's); probably a waif from the West Indies.

§ **96. New Publications.**—We have received: 1. Archives of Science, Nos. 8 and 9, completing Vol. I., and continuing the Phenogamous Flora of Vermont, by Prof. F. Perkins, and the Cryptogamic by C. C. Frost. 2. *Gardener's Monthly*, Vol. XIII., No. 1, edited by Thomas Meehan. 3. The Club is indebted to Prof. F. V. Hayden, of the Territorial Survey, for a copy of the *Flora of Colorado*, by Thomas C. Porter and John M. Coulter, noticed by a correspondent elsewhere. 4. Dr. Gray's notes in Silliman are, as always, of great interest. 5. The *American Naturalist* abounds in matters of interest to Botanists. All friends of the science should give it their support. 6. *Revision of the North-American Chenopodiaceæ*, by Sereno Watson from Proc. Am. Acad. of Arts and Sci., Vol. IX. We have here another of Mr. Watson's admirable monographs. Attention has heretofore been called to *Chenopodium leptophyllum* Nutt., found by Prof. Eaton at Absecom, N. J.; confer Mr. Watson's note, § 65 of current vol. of Bulletin. *Blitum capitatum* L., we gathered many years since in an orchard at Orange, N. J., where it seemed to be at home, Mr. Watson limits it to the northern border states.—7. *The New York Semi-Weekly Tribune*, Friday, June 5, contains a contribution by Dr. Gray, on *Insectivorous Plants, Additional Investigations.* It consists chiefly of extracts from letters of Dr. Mellichamp, of Bluffton, S. C. These letters give Dr. M.'s observations and experiments in relation to the wonderful adaptations of *Saracenia variolaris*, Mchx., for catching insects and converting them into food. This is one of the most marvellous of the many extraordinary relations of plants to insects. A notice attached to our copy of the *Tribune* states that for a few days copies will be sent post-paid to any address in the United States on receipt of five cents for each.—8. *Catalogue of Plants growing without cultivation in the State of New Jersey, with a Specific Description of all the Species of Violets found therein. Directions for Collecting &c. Suggestions to Teachers, &c. To which is added a Directory of living Botanists of Norh America and the West-Indies.* By Oliver R. Willis. J. W. Schermerhorn & Co., 14 Bond street, N. Y. The Directory of Botanists is the Second Part of the Bulletin's Directory, copied bodily, not even the supplementary corrections and additions which accompanied it being introduced, nor those which were added in a subsequent number, not even the important one of H. H. Babcock. We see that Mr. Willis has obtained a copyright for his Catalogue, including our Directory, which is not the least valuable part of it. We find it hard to understand this obliviousness of the rights of others.

As for the Catalogue itself, it is strange, in view of the professions in the introduction, that the author should seriously attempt a list of New Jersey plants, and not consult so readily accessible sources of information as Gray's Manual and the Bulletin of the Botanical Club. Yet many plants native to New Jersey are entirely ignored by him, *Caulophyllum*, *Polanisia*, *Rhamnus*, *Frangula*, *Eclipta*, *Lechea Nova-Cæsareæ*, *Pogonia divaricata*, for example; and, in his own favorite genus, *Viola rotundifolia* and *V. rostrata.* We prefer not to dwell on the imperfections and faults of the work. Mr. Willis's contributions to the Flora of the State of New York lead us to expect better things. There are a number of interesting localities contributed by Mr. Canby, Prof. Porter, Dr. Knighton, and others.

§ 97. **Dr. Chapman's Herbarium.**—We are informed that Dr. Chapman is desirous of disposing of his Herbarium. It must be valuable as containing the types of the new species described in his "Flora of the Southern United States," and as being rich in Southern plants generally, now so difficult to obtain. His address is Apalachicola, Florida.

CYPERACEÆ,

CYPERUS L.—*C. flavescens*, L.; Borders of salt marshes and in bog meadows, *Torr. Cat.*; Long Hill and Chatham, N. J., *W. H. L.* —**C. diandrus**, Torr.; "In salt marshes, Hoboken," *Torr. Cat.*; frequent where water is brackish, *State Flora:* Var. *castaneus*, Torr.; more common in the interior of the State, *State Flora.* Dr. Torrey in his Catalogue, 1819, p. 90, says of his new species, that it is rarer than *C. flavescens*, but not uncommon in Hoboken meadows, generally in overflowed situations. We find the var. *castaneus* in all directions around New York, and some rather bleached looking specimens from muddy or "overflowed" situations, but doubt the existence of any valid distinction between the type and variety. If *C. diandrus* is more than an American variety of *C. flavescens*,

Terms—One Dollar per annum beginning with the January number. For the Botanical Directory alone, 30 cents. Back volumes on hand.

The Club will have no regular place of Meeting this Summer, while the Herbarium is transferred to other rooms.

the only obvious distinction, in addition to those mentioned in the Manual, are the greater breadth and commonly greater length of the spikes. *C. flavescens* does not seem to be common about New York.—**C. Nuttallii**, Torr.; Long Island; New Jersey; Staten Island; N. Y. I., *State Flora.* Abundant at Coney Island, Babylon, etc. —**C. erythrorrhizos**, Muhl.; Edwards Pond, Suffolk Co.—**C. inflexus**, Muhl.; Closter, 1861, not since found, *Austin.*—**C. dentatus**, Torr.; N. J., *Torr. Cat.;* Sandy swamps, L. I.. *State Flora;* Staten Island, Red Bank, South Amboy, Bergen Point, *W. H. L.*; Closter, common, *Austin.* Abundant in Hamilton Co., but in none of my specimens are there tubers attached to the rhizoma, as stated in the State Flora; almost every specimen is proliferous, *W. H. L.*—**C. phymatodes**, Muhl.; "On the sandy beach about Bath, L. I." *Torr. Cat.*; Long Island, *Ruger.*—**C. strigosus**, L.; very common; N. Y. I.—**C. Michauxianus**, Schultes; common in the neighborhood of N. Y., and Long Island, *State Flora;* Harlem River, *Torr. Herbarium.;* Tottenville, *W. H. L.;* Closter, common, *Austin.*—**C. Grayii**, Torr.; abundant in the sandy parts of Long Island, Staten Island, and New Jersey.—**C. filiculmis** Vahl,; common on southern part of L. I.; *Ruger;* Staten Island; New York Island; Closter, *Austin;* Chatham. N. J.; generally common, *State Flora.*—**C. ovularis**, Torr.; Closter, rare, *Austin;* elsewhere not uncommon, Bergen Point; Long Island; High Bridge, N. Y.; Staten Island, etc.—**C. retrofractus**, Torr.; "I am pretty confident that I found this species many years ago on the Island of New York and on Long Island. It grows sparingly about Hoboken, and is not uncommon in pine barrens of New Jersey." *Torrey in State Flora.* We know of no one who has found it in this vicinity of late years.

DULICHIUM, Richard. — **D. spathaceum**, Pers.; common; N. Y. I.

FUIRENA, Rottböll.—**F. squarrosa**, Mchx.; *Le Roy;* Long Island, *State Flora;* Suffolk Co., *Miller & Young:* Var. **pumila**, Torr.; Long Island, *State Flora.*

ELEOCHARIS, R. Br.—**E. Robbinsii**, Oakes; Suffolk Co., *Miller & Young.* **E. tuberculosa**, R. Br.; Long Island, *State Flora;* New Jersey Barrens, probably within our limits, *W. H. L.*—**E. obtusa**, Schultes; common; N. Y. I.—**E. olivacea**, Torr.; Mohegan Lake, Westchester Co., *W. H. L.;* Long Island, near Babylon, *State Flora.* Hackensack Marshes, abundant; Closter, common, Austin.—**E. palustris**, R. Br.; common; N.Y. I.: var. **calva**; Hackensack swamps. *W. H. L.*—**E. rostellata**, Torr.; common in the Hackensack Meadows, and on Long Island. We believe that Dr. Allen was the first to point out the curious habit of this plant in rooting from the apex of the sterile shoots, forming loops which catch the feet of the passenger.—**E. intermedia**, Schultes; In swamps, N. J., *Torr. Cat.* ("*Scirpus intermedius*, Muhl. Gram.")—**E. tenuis**, Schultes; common; N. Y. I.?—**E. melanocarpa**, Torr.; Suffolk Co., *State Flora, Miller & Young.*—**E. acicularis**, R. Br.; common, particularly abundant on Long Island.—**E. pygmæa**, Torr.; common near New York, and on Long Island, *State Flora;* Closter, common, *Austin;* Staten Island, Weehawken, &c.

§ 98. On the Calyptra in the Genus Archidium.—(In the year 1868, after long and patient search, I succeeded in finding the *Calyptra* in the genus *Archidium*. Previous to this it appears never to have been noticed by any one. I immediately communicated the discovery to Mr. Sullivant, presuming that he would give us a correct figure of this organ, and of its position with regard to the mature capsule, in his promised "Supplement to Icones Muscorum." But learning from Mr. Lesquereux that he left no notes or drawings on the subject, I have concluded to furnish for publication in the BULLETIN a synopsis of my own notes.)

In Archidium Ohioense, *Schimp.*, A. alternifolium, (*Brid.*) *Schimp.*, and A. tenerrimum, *Mitt.*, the only species of the genus known to me, almost immediately the capsule begins to form the calyptra ceases to develop, and, rupturing partly around the base, is quickly left at the base of the capsule, usually slightly adhering by a portion of its margin to the apex of the vaginula. It consists of a long style, slightly expanded and lobed at the base. The style at length becomes curved, much flattened and oblique by being crowded between the perichætial leaves and the capsule; it is many times longer than in the genus *Sympoma*, Aust. (*Micromitrium*, Musc., Appalach.), while the expanded portion is equally as minute and as imperfectly developed. It occasionally ruptures, vertically, throughout nearly the whole length of the style; in this case a portion of it is left on either side at the base of the capsule.

C. F. A.

§ 99. Rumex Patientia, L.—This introduced species of Rumex appears to be little known, though it has been in the country for two hundred years. Is it actually rare, or has it commonly been overlooked? Our Manuals of Botany do not furnish us with much light on the subject. This plant has been known for a number of years in Amherst, Mass., and during the past three seasons we have found it not rarely in the neighboring towns, growing with *R. crispus and R. obtusifolius* under the same conditions and as thriftily as either of these species.

It is still more common at Highgate Springs, Vt., where for miles it may be seen on the roadside, and increasingly common as you cross the Canada line. Specimens from all these localities have been submitted to competent authority and determined.

Will not some of the readers of the BULLETIN interest themselves in the matter, and, by furnishing complete and mature specimens of all the less known Rumices in their vicinity, assist in determining more fully the range and character of the genus under consideration?

H. G. JESSUP, Amherst, Mass.

§ 100. Discharge of Pollen in the Paper Mulberry.—Some two years ago (vol. ii, No. 4), this subject was presented in the BULLETIN, by my father, Dr. Martin. I had myself never seen the phenomenon of the explosive discharge of pollen by this plant, and have consequently watched for it with much interest. This season, however, I have had the opportunity not only of witnessing, but of studying, the whole process.

It will be remembered that *Broussonetia papyrifera* is a diœcious tree, the staminate catkins of which, produced in immense numbers, are loosely covered with the small apetalous, four-parted flowers. The fallen catkins always exhibit the opened calices, with the four stamens stretched out at full length and more or less reflexed.

On a warm morning, late in May, procuring a branch laden with catkins, from a cluster of young trees where the discharge was in full blast, I had repeated discharges take place while the branch was held in the hand. The catkins were not fully expanded yet, a few of the flowers only being open, with their reflexed and extended stamens, while the majority were closed or but half-opened. The latter showed the stamens coiled over in a twisted arch or bow, inwards and downwards, with the white anthers closely adjacent to each other in the bottom and centre of the calyx-cup. I fixed my eye on certain particular flowers, and watched them as long as I had time, in hopes of seeing the actual opening and discharge; but Nature will not hasten for our convenience. Other flowers would send off a puff; but all was done in an instant, and I had not my eye on the right one at the right time. Failing in this, I tried loosening a stamen of a nearly-open flower, with a pin. Instantly it sprang outward and backward, assuming the usual full-length reflexed position, and discharged its pollen in the manner observed, the anther-cells springing open at the same moment, and appearing empty as soon as the eye could note them. This I did over and over again, and always with the same result. In the still air of a room, the pollen-cloud from a single anther could be distinctly seen for about six inches from the point of discharge.

The anther-cells open at the same time with the springing out of the stamen; but whether in consequence of striking against the stalk and the adjacent flowers, or independently, could not be determined. They appear for a very short time like exquisite little valves of white silk, lustrous and delicate; but almost in a quarter of an hour they begin to show signs of fading, and speedily assume that withered aspect that is so familiar on the fallen catkins.

How far this whole phenomenon is familiar to botanists in general, I cannot say. Prof. Gray remarks of the section including this tree with Morus proper and Maclura, "filaments inflexed in the bud, spreading elastically when the calyx expands." The explosive discharge, however, does not seem to be familiarly recognized. It is about as complete and energetic a method for distributing the pollen so as to reach the fertile trees, as can well be imagined. The air around a staminate tree must be fairly charged with the grains for days; and the lightest wind must carry them to long distances. Unfortunately, the fertile trees are so scarce that, for the most part, all this activity is but wasting the pollen "on the desert air"; and I fear the species are dying out in the city, for it is only by offshoots that any new trees are produced.

It may be well to add that all the evidence shows the process to be purely mechanical, and in no way connected with any insect agency. There is nothing in these plain and odorless catkins to attract insects; and the discharge goes on in the room, or even in the hand, where no insect is near. D. S. MARTIN,

June 25, 1874. 236 West Fourth St.

§ **101. New Comer.**—I was handed the other day by a friend, a plant from the neighborhood of Providence, which Sereno Watson identifies as *Crepis aurantiaca.* I have never heard of it in this vicinity before. Mr. Watson informs me that it is becoming introduced at the East. W. W. BAILEY.

§ **102. Connecticut Valley Botanical Society.**—From a notice in the *Springfield Republican* we learn that this Society had a very animated meeting at Mt. Holyoke Seminary, Wednesday, June 10. Prof. Biscoe demonstrated the course of the pollen tubes in Vinca and Apocynum, I believe, for the first time. I hope this accomplished investigator will be able to demonstrate the origin of the glands, which I was led to suspect come from the anthers, a suspicion in which I found Schleiden had anticipated me. Schleiden, however, from a study of *Gomphocarpus* and *Hoya*, almost concludes that they are derived from the winged appendages of the anthers; it seemed to me, that, in *Apocynum*, they originated in the lower portion of the contents of the anther cell, *i. e.*, were disintegrated pollen. Schleiden remarks that the investigation is one of the most difficult. (Bull., Vol. III., §§ 81, 89, 95, Vol. IV., §§ 3, 33.)

The fact that Apocynum captures insects was well known. The relation of this to the fertilization of the plant I believe was first pointed out by myself, though I found that Schleiden had already detected and figured the true stigmatic surface and tissue. The notice of the meeting seems to ascribe more than his share to Prof. Biscoe, a misapprehension for which I am assured he is not responsible. I may here state that last summer, in Hamilton Co., N. Y., I found some quite large lepidoptera captured by *Apocynum androsœmifolium;* the name of the species, kindly given me by J. A. Linter, through Prof. D. S. Martin, is *Ctenucha Virginica,* Charp., (*Glaucopis Latreillana*, Kirby.) W. H. L.

§ **103. Darlingtonia as a Fly trap.**—A lady writes that in Nevada City they use the leaves of Darlingtonia Californica in what may be a useful as well as ornamental way by placing them upon the tables, with a little molasses smeared in the "throat" of the tube to attract the flies. W. B.

53 Fulton St., N. Y.

§ **104. Errata.**—in Mr. Austin's Musci, § 91, p. 24, **Plagiothecium Passaicense,** 4th line, for "12-30" read "12-20;" **Hylocomnium Flemmingii,** 5th and 6th lines, for "ad basis . . . . . . subquadrato —" read "minute angusteque (ad basis angulos subquadrato—"); for the last sentence on the page read "The costæ are wholly distinct at the base (wide apart and nearly parallel throughout).—§ 94. **Hysterium fibrisedum,** 3d line after the word "bent," add ".0011′ x.0004′ (at the broad end.") In April No., p. 18, § 86, l. 19, for "plantation" read "plateau."

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§ 105. Suffolk County Notes.—Onopordon acanthium, L.—In Prof. Peck's Report for 1872 Greenport and Shelter Island are given as new stations of this rare plant. I saw it about a year ago growing on the new camp-meeting grounds at the latter place, where it will doubtless soon be exterminated in the course of the improvements now making. There it was small, and growing in dry, sandy soil, doubtless stunted by the drouth; no specimens seen were more than two feet in height, and none had bloomed by July 24th. This season I saw a patch growing here in Northville, where part of a boat load of ashes from the western part of the State or Canada had been dumped last season; also near Riverhead, just inside the fence bordering the highway, and in the edge of a field of oats a row two rods in length was very conspicuous through June and July, although I had never noticed any there before. They made a splendid growth, attaining a height of six or seven feet, blooming abundantly all through July, and really looked as if they had been planted there. After some scratches in the endeavor to obtain specimens without a knife, I left them for a more convenient season, but, when I passed that way again, found them ignominiously pitched into the street.

In the Manual description, among the generic characters, I read "bristles of the pappus—not plumose." In all the specimens I have examined the bristles have fine barbs pointing upwards. Is not the term plumose rather indefinite?

Block Island.—A recent visit to this little island proved it to be the poorest locality for botanizing I had ever seen; the whole surface, which bears much resemblance in configuration and character to Montauk, being under cultivation and entirely destitute of trees or shrubs, excepting a very few silver poplars in the sheltered angles of dwellings. I don't imagine that there is a single botanist among the fourteen hundred inhabitants. The only spontaneous vegetation I noticed were *Rumex crispus*, *Cirsium arvense*, those horrible pests, very abundant in fields near the landing, *Lycium vulgare*, the Duke of Argyle's "tea-plant," extensively planted for ornament and escaping from cultivation in many places, and two or three common water plants in a small pond. But the growth of marine *algæ* was to my eyes something wonderful. Never, even in tropical waters, have I seen them growing with a tithe of the luxuriance they display upon the rocks of a basin that is less than four years old. There were forests of *fucus*, which with the *ulva* made a dense covering for the rocks, and then there were huge rosettes of *kelp* from four to six feet in diameter, with waving fronds almost as long, curving gracefully outwards. Altogether, they formed as brilliant a parterre for a "sea-garden" as heart could wish.

Cratægus Crus-galli, L.—Notes made June 14th—Young thorns $1\frac{1}{2}'$–$2'$ long, still soft and flexible, have several minute but distinct triangular-lanceolate leaflets, thus adding another characteristic to that of position in proof of their branch-like nature. I have seen these thorns bearing true buds in winter—of course, from the axils of the scale-like leaves. These ugly thorns are then degenerated or partially developed branches, serving to ward off animal enemies. And another singular fact in this connection is that only the first three or four leaves on the new shoots bear thorns in their axils, the rest having only a single bud, which develops into a branch the following spring, while upon each side of the thorns are the supernumerary buds from which two shoots arise.

Plantago pusilla, Nutt.—This little plant I have noticed more frequently the past Spring than ever before; by roadsides in sandy soil and in grass fields as loamy as any of our lands they grow by the thousand—more abundantly, I think, than any other species of the genus. I must believe that botanists as well as others have overlooked it on account of its minute size.

Additions to Suffolk Co. Catalogue.—Thus far this season, Mr. Miller and I have added to our list the following species: *Spergula subulata*, *Salix discolor*, *Menispermum Canadense*, *Bromus racemosus*, *B. mollis*, *B. sterilis* (distinct from *B. tectorum*,) *Trisetum palustre*, *Eatonia Pennsylvanica*, *Festuca nutans*, *Carex utriculata*, *C. sublata*, (dwarf form), *Erodium cicutarium*, *Cratægus tomentosa*, *Cardamine hirsuta*, var. *sylvatica*. H. W. YOUNG.

AQUEBOGUE, *Aug.* 4.

§106. Additions to the Bryology of the United States, by Chas. Mohr.

NO. III.

Description of two new Musci from the Pacific coast of the United States.

Lately I have come into possession of fine specimens of the *Hypnum pseudo-sericeum*, C. Müller, mentioned as new from Oregon in the January number of the Bulletin, but too incomplete to allow the proper delineation of its characters. The author of the species has drawn the following description from fertile specimens of great perfection which I was enabled to forward to him.

1, **Hypnum** (*Homalothecium*) **pseudo-sericeum**, C. Müller, *n.sp.* Dioicum; laxe cæspitosum *procumbens vage ramosum pallide lutescens flexuosum flaccidum*, sericeum *ramulis* breviusculis apice breviter cuspidato *curvatis turgidulis mollibus*; folia *caulina* laxe conferta, madore patula, e basi paulisper decurrente rotundata vix impressa anguste vel latius lanceolata in acumen longiusculum acutatum denticulatum, sæpius semitortum cuspidata, *irregulariter et indistincte sulcata*, profunde concava, margine e basi ultra medium valde revoluto remote et obsolete denticulata, nervo angusto in acumine dissoluto, cellulis ubique pallidis incrassatis angustissimis liniaribus striatulis; perich. externa minora ligulate ovata obtusata, interna a basi late vaginata laxe elongate reticulata pallidissima tenerrima flaccidissima sensim in acumen valde elongatum denticulatum angustius sed elongate reticulatum protracta erecto–patula enervia; *theca in pedunculo perbrevi* rubente sæpius valde flexuoso supra basin infimam valde tuberculosa erectiuscula vel vix inclinata *subito arcuata cylindrica* glabra badia, ore constricto brunea, calyptra firma truncatula levi; perist. d. ext. robusti rubiginosi valde cristate trabeculati albide limbati, int. in membrana lutea tenera valde reticulata, ciliis singulis vel binis.

Ab *Hypno sericeo* proximo criteriis accuratius laudatis jam certe distinctum pulcherrimum.

Patria, *Oregon*, ubi Rev. R. D. Nevius secus Portland primum legit, vere, 1873.

This beautiful Homalothecium seems to be quite frequent in Oregon. In every lot of mosses received from different localities in the eastern part of the State specimens of it have been found mixed with Neckera Menziesii, Mnium Menziesii, undoubtedly growing with those mosses on rich ground or upon moss-clad rocks in shady places.

2, **Bryum Atwateriæ**, C. Müller, *n. spec.*, *Bryum alpinum* simillimum, e lutescenti-viridi purpurascens, robustum, strictum, ramis longiusculis obtusatis uncialibus; folia caulina dense imbricata madore vix patula, e basi angustiori latiuscule ovata ligulate obtusata, profunde cochleariformia concava apice subcucullata, margine e basi usque ad medium vel ultra valde revoluta integerrima, firma, nervo e basi longe fibroso crasso flavido ante apicem evanido cellulis ubique firmis pulchre lutescentibus parvis et inanibus basi infima rectangularibus vel hexagonis laxioribus hic illic purpurascentibus.

Patria, California, prope Yosemite Falls, in terra saxosa. Mrs. E. Atwater leg. æst., 1873.

About the particular habitat of this rare moss the discoverer makes the following remarks, which might serve a future visitor interested in botany to find more and *fructiferous* specimens:

"It was found at the foot of a tree on the rocky ground at the foot of the fall, where it was only temporarily the recipient of the spray from the same, when the wind was in a favorable direction. Earlier in the season, at a higher stage of the water, the locality would doubtless have received constant moisture from this source."

§ **107. Publications.**—1. *Report of the Botanist*, Charles H. Peck, published April, 1874, in advance of the Twenty-sixth Annual Report on the New York State Museum of Natural History for the year 1872. The industrious State Botanist here continues his contributions to the Fungology of the State, and makes some interesting observations in regard to some of the higher plants. Twelve of the latter, including two *Charas*, are reported new to the State, six of the twelve from Long Island, and heretofore mentioned in the BULLETIN, are to be found in Miller & Young's Catalogue. The others are: *Pycnanthemum pilosum*, Nutt, Wayne Co.; *Asplenium montanum*, Willd., Ulster Co., and the two *Charas*, *C. hispida*, *C. Hedwigii*, introduced; *Torilis anthriscus*, Gaert, Buffalo; *Chenopodium polyspermum*, L., Onondaga County. We notice that Mr. Gerard's *Peziza chrysophthalma* has again met with a typographical misfortune—2. *Transactions of the Massachusetts Horticultural Society* for the year 1874, Part I.; devoted to Discussions on various subjects connected with Horticulture, in which the Orchids have a large and interesting share —3. *Psyche*, Organ of the Cambridge Entomological Club, edited by B. Pickman Mann, Nos. I. to IV., May to August. Each No. will contain at least four pages, price one dollar a year. This little periodical follows the example of our BULLETIN, beginning on a small scale, intending to take root and grow. The first No. contains a valuable map of the limits of the alpine and subalpine districts of the White Mountains.

§ 108. **Negundo aceroides in New York.**—An important addition to the flora of New York has recently been made in the discovery of Negundo aceroides, Moench, in a small piece of woods on the bottom land of the Inlet valley, about two miles south of Ithaca. There are a dozen or more plants, the largest being 30 to 40 feet in height. They were first observed by one of our botanical students, Mr. J. C. Branner, while out collecting. So far as I am able to learn, this tree has never before been recorded as growing spontaneously within the limits of the State. A. N. Prentiss.

Cornell University, *June* 25, 1874.

SCIRPUS, L.—**S. planifolius**, Muhl.; Palisades, common, *Austin;* Richmond Hill, L. I., *Ruger.*—[*S. subterminalis*, Torr.; not reported in our limits, but to be looked for, as it is found in Suffolk Co. and the New Jersey Pines.]—**S. pungens**, Vahl; common; N. Y. I.—**S. Olneyi**, Gray; Junction of E. R. R. & N. R. of N. J., *Allen.*—**S. validus**, Vahl; common.—**S. debilis**, Pursh.; N. J., *Torr. Cat.;* Long Island, *State Flora*, near Greenwood Cemetery, *W. H. L.;* near Jamaica Pond, Ridgewood Aqueduct, *Ruger;* Closter, not rare, *Austin;* Morristown, *W. H. L.*—**S. maritimus**, L.; common; N. Y. I.; var. **macrostachyos**, Mchx.; *Torr. Cat.;* Suffolk Co, *Miller & Young.*—**S. atrovirens**, Muhl.; common; prolific variety at East Williamsburgh, *Ruger.*—**S. polyphyllus**, Vahl.; Staten Island?; Suffolk Co., *Miller & Young.*—**S. lineatus**, Mchx.; Bergen Point, *W. H. L.;* Palisades, *Austin*—**S. Eriophorum**, Mchx.; common; var. **laxus**, Bergen Point, *W. H. L.;* Long Island, *Ruger.*

ERIOPHORUM, L.—E. Virginicum, L.; common, but not reported from N. Y. I.—**E. polystachion**, L.; Closter, common in South Jersey, *Austin;* Long Island, *Torr. Cat.;* Suffolk Co., *Miller & Young.*—**E. gracile**, Koch, Var. **paucinervium**, Engelm.; New Durham Swamp (E. angustifolium), *Torr. Cat.;* Centreville, &c., L. I., *Ruger;* Suffolk Co., *Miller & Young.*

FIMBRISTYLIS, Vahl.—**F. spadicea**, Vahl., var. **castanea**; Hoboken, *Torr. Cat.;* Hackensack Meadows, *Allen;* Salt marshes near N. Y., *State Flora;* N. Y. I., *Morris;* Suffolk Co., *Miller & Young.*—**F. autumnalis**, common; N. Y. I., *Morris.*—**F. capillaris**, Gray; common; N. Y. I., *Morris.*

RHYNCHOSPORA, Vahl.—**R. Torreyana**, Gray; Barrens of New Jersey, perhaps within our limits.—**R. fusca**, Rœm & Schultes; Moriches, L. I., *State Flora;* New Lots, L. I., *W. H. L.;* Suffolk Co., *Miller & Young.*—**R. gracilenta**, Gray; South New York and New Jersey, *Gray's Manual;* Philipstown, Putnam Co., *State Flora.*—**R. alba**, common; N. Y. I., *Morris.*—**R. capillacea**, Torr.; Putnam Co., *Dr. Barratt in State Flora*, perhaps in our limits.—**R. glomerata**, Vahl; common; N. Y. I., *Morris*—**R. cephalantha**, Torr.; East New York, *W. H. L.;* Islip, *State Flora;* Suffolk Co.,

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Miller & Young; New Jersey, *Austin, &c.*—*R. macrostachya,* Torr., and *R. nitens*, Gray, have been found in Suffolk Co., but probably not in our limits.

CLADIUM, P. Browne.—**C. mariscoides,** Torr.; common; N. Y. I., *Morris.*

SCLERIA, L.—**S. triglomerata,** Mchx.; Newark Meadows, *Torr. Cat.;* Chatham, N. J., Rockaway, L. I., *W. H. L.;* Closter, rare, *Austin.*—**S. reticularis,** Mchx.; Suffolk Co., *State Flora, Miller & Young.* —**S. laxa,** Torr.; "Sandy swamps, L. I., common in pine region of N. J.," *State Flora; Le Roy.*—**S. pauciflora,** Muhl.; *Le Roy;* Rockaway, L. I., *W. H. L.* —**S. verticillata,** Muhl.; Hackensack meadows, *Allen*, 1863; Trains Meadows, Woodside, L. I., detected on a field day of the Club, Aug. 27 last, by *Mr. Ruger*, who pointed out that the lower sheaths were retrorsely hairy, and a tuft of it decidedly fragrant. It grows in the same locality with *Frangula:* apparently annual.

N.B. We do not like to enter upon the difficult genus *Carex* without more help.

§ **108. Erodium cicutarium,** L'Her.—In one of the earlier numbers of the BULLETIN for 1873, Prof. James Hyatt reported a field in Poughkeepsie as a new station for this plant. Having learned the exact locality from Prof. H., I visited it a few days ago, and found thousands of the plants in flower, densely carpeting a space at least sixty or seventy feet square, at the spot he indicated, and also various small patches at various points in the field, somewhat removed from the original station. The plants are well established, and have evidently been growing in their present locality for years. W. R. GERARD.

June 11, 1874.

§ **109. Solea concolor,** Ging.—Last May, I detected *Solea concolor*, Ging., in a cold mountainous woods about a mile from the village of Pine Plains. It was growing very luxuriantly—many of the stems being all of three feet in height—and covered several acres of Ground, almost to the entire exclusion of other herbaceous Plants. Recently I gathered a number of specimens in fruit, which have in full the peculiar characteristics of the violet order.

With the exception of the single specimen in fruit, detected in 1864 by Mr. I. H. Hall at Tarrytown, I believe it has not been hitherto reported as found east of Palmyra. This station, in addition to the fact that the plants grow very abundantly, is yet east of Mr. Hall's at Tarrytown, being only about eight miles from the Connecticut State line. Pine Plains is in the north-eastern part of Dutchess County, about twenty miles northeast of Poughkeepsie, and is a few miles south of the parallel of latitude (the 42d) which forms the northern boundary of Pennsylvania.

In the next month's Bulletin, I shall give a list of those plants growing about Pine Plains which are generally regarded as scarce or rare, and of those whose usual habitat is reported generally (particularly in the "*State Flora*"), to be to the north or the south of this latitude. A few of them, as will be seen, without being so marked as *Solea concolor*, Ging., are, nevertheless, usually thought to be almost as great strangers in this—the south-eastern part of the State. L. H. Hoysradt.

Pine Plains, N. Y., Sept. 21, 1874.

§ 110. Publications.—We have received: 1. *The American Garden*, New Series. Vol. I, No. 1, a Monthly Illustrated Journal, Devoted to Garden Art, edited and conducted by James Hogg. Beach Son & Co., Publishers, 76 Fulton St., Brooklyn, N. Y.—2. *Revised Catalogue of North American Ferns*, compiled by Wm. Edwards, South Natick, Mass., Aug. 1874. Price of Catalogue, 25 cents per dozen. The varieties "peculiar to North America" are marked with an asterisk. Is not *Pellæa Wrightiana* one of these?—3. *Psyche*, No. 5.—4. A prospectus of a *Mycotheca Universalis*, by F. Baron Thumen, Bayreuth, Bavaria. Three centenaries, "by no means more," of exsiccated fungi, "loosely wrapped in paper envelopes," will be issued yearly at 15 francs a centenary.

§ 111. Block Island has not been well explored. Dr. Robbins was there in Sept. 1829, and made discovery of some rare New England plants, and I have been there occasionally since.

Rarities—1. The large white lily of the pond near the Spring House is probably *Nymphaea tuberculosa*, Paine, *S. T. O.*, 1874.—2. *Arenaria squarrosa*, Mchx., *Robbins*, 1829.—3. *Myriophyllum scabratum*, Mchx., *Robbins*, 1819, *S. T. O.*, 1848! and Point Judith, 1848.—4. *Hydrocotyle interrupta*, DC., 1848, *S. T. O.*—5. *Anagallis arvensis*, L., 1848, *S. T. O.*, also Newport R.I., *Geo Hunt.*—6. *Blitum rubrum*, Reich. (*B. maritimum*, Nutt.), *S. T. O.*, 1848.—7. *Leptochloa fascicularis*, Gray, *Robbins*, 1829; *S. T. O.*, 1848.

Fine specimens of *Rumex maritimus*, L., and extreme glaucous forms of *Polygonum glaucum*, Nutt., occur here. S. T. O.

Providence, Sept. 12, 1874.

§ 112 Catskill Ferns.—During a short stay at the Catskills, recently, I found a locality of the Aspidium aculeatum, *var.* Braunii, in the Clove ravine. I do not know whether the locality is new or not. Near by I found a limited locality of Pellæa gracilis, *Hook.* This locality of the Aspidium aculeatum, *var.* Braunii, seems to consist mainly of thrifty new plants: no plants appearing to be more than three years old. Another station of this fern was also discovered in the same ravine, at about the same time, about half a mile farther down, by Miss Emily Jenkins, of New York City. This last mentioned station seemed to consist almost exclusively of very young plants, quite numerous, and all very thrifty. In the same ravine, within the space of a very few rods, I detected the following nineteen species of ferns: Polypodium vulgare, *L.*, Pteris aquilina, *L.*, Pellaea gracilis, *Hook*, Asplenium Trichomanes, *L.*, A. filix-foemina, *Bernh.*, Phegopteris polypodioides, Fée, P. hexagonoptera, *Fée*, P. Dyopteris, *Fée*, Aspidium Thelypteris, *Swartz*, A. Noveboracense, *Swartz*, A. Spinulosum, *Swartz*, (small *var.* of A. dilatatum, *Swartz*), A. marginale, *Swartz.*, A. acrostichoides, *Swartz*, A. aculeatum, *Swartz*, *var.* Braunii, *Koch*, Cystopteris fragilis, *Bernh.* Onoclea sensibilis, *L.*, Woodsia Ilvensis, *R. Br.*, Osmunda Claytonia, *L.*, O. cinnamonea, *L.* Outside of the ravine I found also Osmunda regalis, *L.*, and Dicksonia punctilobula, *Kunze*; and

I cannot think that the list would stop here if I had had time to hunt farther. At several spots in the ravine one could count eight species within reach of his hand.

I could not help noticing that the Phegopteris polypodioides and the P. hexagonoptera approached each other in form much more nearly than I had been accustomed to see in Western N. Y.; and I was almost in doubt whether both forms in the Catskills are not the same species. As seen in Western N. Y., there seems to be a wide difference between them: not only in form and size, but in the several amounts of potash contained in the ashes of the two respectively. The P. hexagonoptera (as in a previous note of mine in the BULLETIN) seems to burn without leaving any other residue than a white globule of carbonate of potash. Still, the matter needs further observation and experiment.

I also found, under Haines' Falls, one specimen of Microstylis monophyllos, in fruit. ISAAC H. HALL.

36 Pine Street, N. Y., Sept. 2.

§ **113. Vandalism.**—Last season a lady discovered in Hunter township, Greene Co., N. Y., the only locality known in the State of the beautiful climbing fern, *Lygodium palmatum.* The news got abroad and we are told that the plant is now completely extirpated. The true lover of the vegetable world is not guilty of such thoughtlessness, and often refrains from gathering a rare specimen, or at least the root of a perennial, from a nice sense of what appears a loving mercy to the plant, but is in reality a refined humanity. He himself may expect never to revisit the spot, but he thinks that some other eye may be delighted as his has been. We have friends who are very sensitive on this point. It would be well to avoid communicating the knowledge of rare localities to the undiscerning, or to open their eyes to the wickedness of destroying the helpless strangers. Connecticut has a law protecting the climbing Fern.

§ **114. Desmodium and Lespedeza.**—I was much interested by the notice in the April number of the Bulletin, § 89, of *Desmodium humifusum*, Beck. Twelve years ago I found it in circumstances entirely favorable to its being a hybrid of *D. rotundifolium* and *D. rigidum*, or *D. Dillenii.* All three, if I mistake not, growing abundantly with it. Two plants in separate localities were all I could find, and though I have repeatedly searched for it since, it has never been found again. It seems to me also very plain that *Lespedeza Stuvei* is also a hybrid between *L. violacea* and *L. hirta.* Its appearance and situation, growing with both of the above as I have observed it both in Providence, R. I., and Plymouth, Mass., carry strong conviction to my mind J. W. CONGDON.

§ **115. New Fungi,** by W. R. GERARD.—*No. IV.*

Stilbum aurifilum. (*n. sp.*)—Stems slender, thickened at base and apex, composed of smooth, orange-yellow fibres. Head globose, white, persistent after the plant is dried.

Springing in dense numbers from a web-like mycelium running over the pores of *Daedalea unicolor.* Stems about one-twentieth of an inch high.

Poughkeepsie, Aug. and Sept.

Ceratium insociabile (*n. sp.*)—Clavulae delicate, white, resembling prickles, forming a fascicle; spores oblong, hyaline .0002′ long.

On under surface of leaves of *Smilax herbacea*. In the very few specimens I have found the fascicle has been solitary and situated on the mid-vein, exactly in the centre of the leaf.

Poughkeepsie, summer, rare.

Æcidium Chelonis, (*n. sp.*)—Spots small, circular, greenish-yellow, peridia few, circinating, margin fimbriate, at first white then yellow; spores globose, orange-yellow.

On under surface of leaves of *Chelone glabra*.

Poughkeepsie, June.

Æcidium minutissimum. (*n. sp.*)—Spots flesh-colored. Perithecia very minute, sparse (one or two only on each spot). Spores chrome-yellow.

On leaves of *Hypericum mutilum* in company with *Uromyces Hyperici*. The plants are so minute that they can scarcely be seen except with the lens.

Poughkeepsie, Oct. and Nov.

Peziza nigropunctula. (*n. sp.*)—Cups stiped, black, minute; Asci clavate, .0005′ long, spores hyaline, oblong, .0002′ long.

On newly-cut chips of oak wood. Poughkeepsie, Summer.

Triblidium dealbatum. (*n. sp.*)—Scattered over pallid spots: perithecia elliptical, black, without striæ; lips at length widely gaping and exhibiting a somewhat rugose black disk. Asci clavate; spores broadly oval, often slightly obovate, about 8-septate .0015x-.0006′, the cells filled with granular matter, very pale straw color almost hyaline.

On bark of living *Syringa Vulgaris*. Perithecia very small and often triangular in outline, like those of T. *hiascens*, B. & C. The pallid spots over which the plants are scattered give a peculiar look to the trunks.

Pleasant Valley, N.Y.

Hysterium (*glonium*) **parvulum.** (*n. sp.*)—Perthecia roundish or elongated, obtuse at the ends, smooth, black, without striæ; spores oval, hyaline, 1-septate .0002′—.0003′ long.

Growing in parallel series in denuded wood of *Alnus serrulata*. Poughkeepsie.

Dothidea Linderæ. (*n. sp.*)—Stroma black. erumpent, roundish or oblong, often confluent, surface convex, papillate. Asci? Spores oblong, pale brown, 1-septate, .0006′x.0002′.

Bursting through bark of dead *Lindera Benzoin*.

Diatrype exasperans. (*n. sp.*)—Perithecia subglobose, immersed in an olive-green stroma which elevates the bark and protrudes through, forming elongated pustules. Asci cylindrical. Spores broadly oval, obtuse 1-septate, constricted at the septum, dark-red brown, .0006′x.0003′.

On back of *Fagus ferruginea*, giving it a very rough appearance. New Paltz Landing, N. Y.

Terms—One Dollar per annum beginning with the January number. For the Botanical Directory alone, 30 cents. Back volumes on hand.

The Club will have no regular place of Meeting this Summer, while the Herbarium is transferred to other rooms.

§ **116. Grasshoppers.**—No ornamental plant is more frequently found in country gardens and escaped to the roadside than *Hemerocallis fulva*, L., the common Orange Day Lily, so called, because the flowers which open in the morning close at or toward night. They are to be seen next day twisted up, and remaining for a day or so, shrivel up and fall off. On opening one of these twisted flowers one morning in July, I was surprised to find in it a good-sized and vigorous grasshopper, who was doubtless equally surprised and rejoiced to be delivered from his prison. I had often found the dead bodies of grasshoppers clinging to the tops of grass culms or other slender plants, and supposed that the insect had climbed, in its feeble old age, to enjoy the warmth of the sun or escape the chill dews nearer the ground. The following evening being cool (it was in the northern part of the State) and clear, and promising a cold night, I examined the flowers about closing, and in two cases found a grasshopper resting near the bottom of the cup. I looked for them again in the morning, but they had made their escape, perhaps alarmed by the gradual closing of the flower. The remaining evenings of my stay were not clear, nor dewy, and I found no more grasshoppers in the flowers. W. H. L.

§ **117. Helianthus tuberosus, L.**—We have referred in another article to the question of the origin of the common Artichoke. We condense what DeCandolle says on the subject:

The root has been cultivated in Europe since the beginning of the seventeenth century, as coming from America. Columna, one of the first to speak of it, saw it in the Farnese garden, and names it Aster *Peruanus* tuberosus. Bauhin, in 1619, calls it Chrysanthemum latifolium *Brasilianum.* Parkinson gave it the name of Battatas *Canadensis.* Several authors of this period give the vague epithet *Indicum.* Linnæus adopted the opinion of the Canadian origin, which is decidedly an error, at least as to Canada properly so called, but the term might very well apply to the more southern regions formerly vaguely comprised under the name of Canada. The plant has not been found wild anywhere. From its mode of life it ought to come from a temperate climate, and, according to all the evidence, from America. I doubt its being a native of Brazil, for of forty species described in the *Prodromus* there is not one of that country. The Peruvian origin has in its favor the name at the time of its introduction, and the fact that there exist two or three Helianths in the chain of the Andes. Nevertheless, Humboldt did not see the species cultivated in any part of the Spanish colonies, and the great majority of the species of the genus come from Mexico and the United States. Martius did not see the Artichoke in Brazil.

According to Dr. Gray, the best guide in North American botany, the probable original is our *H. doronicoides*, which has a "root stock thickening into elongated tubers." Man. 5th edit., page 258.

§ 119. Cephalanthus occidentalis, L.—A number of years ago, when I was beginning to botanize, and first found this plant, on the outlet of Owasco Lake, where it grows luxuriantly, I found, on examining the specimens I had gathered, that they had all the flowers, without exception, with a 5-parted corolla It puzzled me greatly, though I finally made it out; but never since then have I seen it with any 5-parted corollas. Later observation has made me familiar with such freaks, but the fact seems worth recording.

I cannot help observing here, that wherever I have seen this plant, except when cultivated, I have always found *Saururus cernuus* growing near it. In the locality above mentioned, particularly, the Saururus grows in great luxuriance, filling the little bays and coves in the outlet; so that the waves from a passing boat make it nod and undulate, looking much like a field of grain waving in the wind.

This again reminds me that Mr. Bower has frequently told me that he never found *Schizæa pusilla* far away from *Lycopodium Carolinianum.* This association of plants, of which doubtless many more instances might be given, is frequently an index showing where to look for a desired specimen. I. H. H.

§ 120. Asclepias verticillata, L.—Mr. F. A. Pollard has given us a bit of this plant which he gathered at High Bridge, the 24th of last August. Mr. O. W. Morris had previously found it on New York Island, but it has not hitherto been reported from here.

§ 121. New Fungi, by E. C. Howe, Yonkers, N. Y.—*No. II.*

1. **Agaricus** (Amanita) **onustus,** *n. sp.*—Pileus 5-6 in. broad, brownish gray, clothed with dust colored warts which easily rub off (persistent about the dark centre), leaving spots of a deeper brown; margin thick, not at all striate; stem 3 in. high, 1 in. thick, attenuated upwards, enlarging as it enters the cap, farinose, ringless, white, stuffed, concentrically squamulose below, the large bulb firmly rooting. Flesh and gills white, the latter changing to fulvous hue in drying. Slightly acrid. Stem very glutinous, at length hard and fibrous. June. Deeply shaded grass land.

2. **Agaricus** (Amanita) **soleatus,** *n. sp.*—Pileus 2–2½ in. broad, fulvous brown, somewhat uneven, with patches of tomentum, sprinkled with a fine, dingy, yellow powder; margin thin, striate; stem 2 in. high, 3–4 lines thick, ringless, smooth, attenuated downwards, fistulose; volva 1 in. broad, even, entire or with a shallow sinus; gills whitish, changing to a cinerous brown in drying. June. Woods.

3. **Dothidea abnormis,** *n. sp.*—Stroma, irregular, carbonaceous, uneven; asci, long, cylindrical, containing 8 oblong-elliptic, brown, uniseriate spores. The basal portion often extended into a thin layer. Resembles Hypoxylon. On *Smilax rotundifolia.*

4. **Diatrype** (Diatrypella) **prominens,** *n. sp.*—Prominently raised above the inner bark, the ruptured epidermis adherent, sometimes lobed, brown, black, or gray, subrotund, often confluent; perithecia globose, covered with a whitish stroma; ostiola large, black; asci clavate or subfusiform; sporidia numerous, curved, yellowish, without nuclei. Bark of *Platanus.* On fallen wet bark the asci are green and distorted.

4. **Hygrophorus Peckianus,** n. sp.—Odorous, rather firm, gregarious or subcæspitose; pileus fleshy, convex or slightly depressed in the centre, smooth, hygrophanous, fuliginous when moist, paler or buff-brown when dry, the margin decurved and sometimes wavy; lamellæ subdistant, broad, thick, arcuate, decurrent, pallid when young, becoming darker with age; stem smooth, stuffed or hollow, subflexuous, often compressed and attenuated below, colored like the pileus; spores subglobose, rough, .0002 in. in diameter.

Plant 1-2 in. high, pileus 5-10 lines broad; stem about 1 line thick.

Ground under *Pteris aquilina.* Lake Pleasant, August.

Odor quite strong, resembling that emitted by some species of Golden-eyed lace-wing flies (Chrysopha). The color of the moist plant is almost exactly like that of *Lactarius fuliginosus*, Fries. Related to *Hygrophorus Cantharellus*, Schw.

5. **Microsphæria Viburni,** *Erysiphe Viburni*, Schw.?—Mycelium web-like; conceptacles scattered, globose; appendages less than 20, longer than the diameter of the conceptacles, dichotomously branched, the tips slightly or much curved; sporangia 6–10, with usually 6 spores. *M. sparsa*, Howe. Leaves of *Viburnum.* The older name is here restored.

6. **Uromyces Ari-Virginici,** *Uredo Ari-Virginici*, Schw., *Uromyces Peltandræ*, Howe.—Sori oblong, often confluent; spores subglobose, irregular, brownish, pedicels sometimes rudimentary. Leaves of *Peltandra* and *Arisæma.* Here also the older name is restored.

7. **Sphæria platanicola,** *n. sp*—Perithecia seated within the inner bark, scattered, minute, black, subconical, the apex somewhat compressed, just piercing the epidermis; asci cylindrical, or subclavate; spores uniseriate, light brown, about 3-septate, strongly resembling those of *Cucurbitaria elongata*, Grev. Branchlets of *Platanus.*

§ **122. Lechea.**—I have for some years been engaged in collecting specimens of this genus, which promises a greater variety of specific forms than has generally been suspected. I think Michaux's L. racemulosa and L. tenuifolia will have to be restored, and suspect that there are several other species confounded under the name of L. minor.

My principal object in writing the present note is to ask contribution or loan of specimens of Lechea from those who may have noticed and gathered varieties of this genus. I desire to learn, as nearly as possible, the extent of distribution of each form. In Florida, near Tampa Bay, Rugel found a very rough species, with many stamens, having short and broad leaves, which Shuttleworth in Dr. Gray's specimen had labelled *L. divaricata.* Beyond that in Dr. Gray's herbarium, I know of only one other specimen, which is in Paris.

A number of botanists have most kindly supplied me with specimens, but there are many parts of the Union and of Canada from which no Lecheas have reached me. I have none from Western New York, and few from the Southern Alleghanies and the adjacent States, where Rafinesque claims to have seen several peculiar forms. Does *L. major* grow in Canada?

Specimens of Lechea are generally best gathered in the fall of the year, when the fruit is mature and the root leaves are forming or formed. I have, however, gathered good specimens in this latitude as late as December.

WM. H. LEGGETT.

224, E. 10th St., New York.

§ 123. **New Publications.**—1. *The Ornamental and Useful Plants of Maine. Part I.*, by F. Lamson Scribner, B. S. Printed for the author, Augusta, 1875. This is a popular account of the "ornamental and useful" plants of Maine, with a number of good illustrations, following the order of Gray's Manual, and reaching to the end of Caprifoliaceæ. We hope Mr. Scribner will feel encouraged to complete his charming and useful work—.2. A copy of the *Springfield Republican*, which we cannot put our hands upon, contained gratifying evidences of the vitality of the *Connecticut Valley Botanical Association.* 3. Darlingtonia Californica, an Insectivorous Plant, read at the Hartford meeting of the American Association, by Wm. M. Canby, Philadelphia, The Gardener's Monthly Print, with an engraving of the plant: a valuable paper, supplementary to the interesting observations on *Sarracenia.*—4. *The American Garden*, New Series, Nos. II. & III. We observe that the editor quotes very largely from the BULLETIN, and in doing so mentions our Club in a manner trying to its modesty. The Garden contains much interesting reading; the articles on Hardy Ferns and Aquatic Plants, for example, will interest cultivators of our indigenous plants. According to De Candolle (Geog. Bot. p. 821), the *Nation* is right in doubting the Brazilian origin of *Helianthus tuberosus*, but why did it not, while parading its botanical learning, give its source, as requested? It seems to us that in this way the credit of "literary men" would have been better maintained.

§ 124. **Jasminum revolutum**, *Sims.*—Prof. D. S. Martin has written us a note, calling attention to an error in Gray's Field, Forest and Garden Botany, in regard to the number of ovules in each cell of Jasminum. In examining a large number of blossoms from a bush of *J. revolutum*, he found that "each cell contained two well developed ovules. One or two of the flowers had three celled ovaries, "two of the cells having two ovules, while in the third but one was distinctly observable."

It is not surprising that, in so condensed a hand-book, covering so wide a field, this exception should have been overlooked. The deviation in the number of cells is a variation like that in *Cephalanthus* mentioned above by Mr. Hall.

Terms—One Dollar per annum beginning with the January number. For the Botanical Directory alone. 30 cents. Back volumes on hand.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P. M.

§ 125. **The Club at Central Park.**—On Saturday, Nov. 7th, the Club visited the conservatory in Central Park, where the manager, Mr. Robert Demcker, a brother member, received them with the greatest cordiality, and was unwearied in pointing out and explaining his treasures. Mr. Ruger has supplied us with the following notice of some interesting plants.—**Plants under shelter:** *Coffea Arabica*, in fruit; *Siphonia elastica*, India-Rubber tree; *Hura crepitans*, called "Monkey's Pistol," from the loud noise made by the explosion of the ripe fruit; *Theophrasta imperalis*; *Hippomane Mancinella*, Manchineel tree (by some called the "Upas tree.") The true Upas tree, *Antiaris toxicaria*, is a congener of the Breadfruit tree, Artocarpus incisa, (but the Manchineel is nearly or quite as poisonous as the Upas); *Cyperus papyrus*, in fruit; *Eucalypti* species; *Aralia Japonica*, in flower; *Aralia papyrifera*, of which the Chinese make their rice paper, in flower; *Mespilus Japonica*, the Chinese Medlar, in fine flower; several species of *Peperomia* in flower.—**Plants out-doors:** *Gymnotrix Japonica*, a Japanese grass, growing also around the fountain in Union Square, in fruit; *Escholtzia Californica*, in flower; *Sanvitalia procumbens*, in flower.

§ 126. **New species of Fungi**, found at Newfield, N. J., by J. B. Ellis.

1. **Agaricus** (Lepiota) **noctiphilus.**—Subcespitose, pileus carnose, cylindric-hemispheric, becoming convex, and even concave, and rather broadly umbonate, sulcate-striate around the margin, the striæ finally extending nearly to the centre, dotted, especially in the disk, with fine black scales, which may be easily rubbed off. Flesh white, thin, almost disappearing towards the margin; gills hardly crowded, rounded behind, free, margins serrulate, color white, stem slender, about one inch long; stuffed, loosely farinose-squamose, annular marked above the middle and surrounded by a distinct black line at base, spores short, obl. about .0002′ long. Pileus not over 1′ across; Mycelium abundant, white.

On a sloping bank of earth in an unfinished cellar, July.

2. **Agaricus** (Tricholoma) **microsporus.**—Pileus $\frac{1}{2}$—$\frac{3}{4}$ across, carnose, thin, slightly rugose, covered with a glaucous bloom, becoming faintly zonate in drying, dull reddish-purple; gills *deeply* and *narrowly* sinuate and narrowly attached at the summit of the stem, hardly crowded, about $\frac{1}{8}$′ broad, pale purplish at first, becoming reddish-yellow; stem about 1′ long and 1 thick, fistulose, finely pubescent under the lens, with long, spreading, pale-yellowish hairs at base. Spores minute, nearly round .00015′—.0002 in diameter.

Among sphagnum in the Swamp. July—October.

3. **Agaricus** (Clitocybe) **trullissatus.**—Pileus carnose, plano-convex, at length depressed in the centre, innate, fibrose-squamose becoming smoother in the disk, margin thin; gills unequal, not crowded, coarse and thick, adnate with a decurrent tooth, at length white-pulverulent, purple-violet at first, becoming dark brick red. Stem stuffed, fibrillose, with a long club-shaped base penetrating deeply into the sand. Spores large, cylindric-oblong .0006′ to .0008 long.

In old sandy fields, Sept.—Oct. The interior of the stem in the young plant is, like the gills, violet-purple, and the club-shaped base is covered with a tomentose coat, to which the sand adheres tenaciously.

Related to *A. laccatus* and *A. ochropurpureus*, B.

Hymenochæte agglutinans.—Of rather loose texture and of a light yellow color at first, becoming firmer and of a light tan color or rufous tint as the bristles are developed; closely adnate with a determinate margin which is tomentose at first; forming orbicular or elongated patches or sometimes entirely surrounding the twig or limb on which it grows for an inch in length.

Common in Autumn in swampy thickets on *Andromeda, Vaccinium*, &c., without much discrimination, fastening the stems or branches together wherever a dead twig or branch lies in contact with a living one; turns black and dries up during the winter.

Helotium naviculasporum.—Stipitate, firm, white, becoming pale yellow; disk convex about 1-20′ across, stem about the same length; asci rather broad; paraphyses slightly thickened above; sporidia about .001′ long, broad boat-shaped, filled with granular matter.

On old leaves decaying in stagnant water, July.

Exobasidium discoideum.—Fleshy and firm, but of looser texture within; at first turbinate and concave above, but the margin soon expands so that the fungus takes the shape of a double convex lens 1′—2′ across and ½′—¾ thick; pale green and smooth beneath, hymenial surface soon white pruinose, but assuming a pale lilac tint in drying. Spores as in *E. Andromedæ*, Pk., obscurely uniseptate and bent at one end, about .0008′ long.

Attached to the under side of the leaves of *Azalea viscosa*, July.

Sphaeria pyriospora.—Perithecia nestling in the inner bark, scattered or subconfluent, often seriately arranged, rupturing the epidermis longitudinally, white within becoming black; ostiola slightly prominent, minute; asci cylindric, turgid; sporidia long pyriform, about .0012′ long, crowded in the asci. Spermatia oblong minute.

On dead branches of *Chionanthus Virginica*, May.

Gymnosporangium biseptatum.—On branches of White Cedar. Appearing in April, bursting through the epidermis in little reddish-chestnut colored velvet-like patches which, about the middle of May, pass into the tremelloid state, swelling out into gelatinous masses the size of large peas; not so distinctly foliaceous as in *G. Juniperi*. Spores long pedicellate, mostly biseptate.

The portion of the branch occupied by the fungus becomes enlarged, swelling out on all sides and increasing in size from year to year till finally branches no larger than a pipe stem bear oblong swellings an inch or more in diameter and four or five inches long. Sometimes the fungus attacks the trunk of a small tree or some of the larger branches, causing swellings of a much larger size.

§ 127. Flora of Pine Plains, Dutchess Co., N. Y., by Lyman H. Hoysradt,—*No. I.*

The following list comprises some of the more uncommon plants which I have detected up to this time growing within five miles of the village of Pine Plains. The physical features of the township are sufficiently varied to give this section certain botanical advantages not usually possessed by many others. First, there is Stissing Mountain, which consists of two adjoining peaks, or gradual elevations, one of them rising above the plain to the height of nearly a thousand feet. On or near its nearly naked summit grow Potentilla tridentata, Ait., Betula papyracea, Ait., Prunus pumila, L., etc. The mountain, which is about six miles in length, has no connection with any other range—being not quite equi-distant from the Taghkanic, Catskill and Fishkill ranges. Our hills, with exception of the mountain, are mostly limestone—the plain being a sandy loam. There are over a thousand acres of untilled marsh land in town, besides quite a number of large cold swamps; in the marshes flourish Betula pumila, L., Blephilia hirsuta, Benth., Andromeda polifolia, L., Myrica Gale, L., Menyanthes trifoliata, L., and a number of other plants unusual for this latitude. All this, with five or six good sized ponds and three large creeks flowing through the township—making a section diversified with mountain, plain, hills, valleys, ponds, creeks, swamps, and marshes—cannot fail to offer a most inviting field to the active botanist.

I take, I trust, only a pardonable pride in the goodly number of Ferns, Solidagos and Potamogetons—my favorite order and two favorite genera—which grow here within two and a half miles of the village. Of Solidagos I have already detected, within the above small circuit, twenty different species, and thirty-three species of Ferns, besides three or four varieties of the latter. In a future article, I shall give their names in full.

Clematis verticillaris, DC.; Frequent; common in the ravines of Stissing Mt.

Anemone cylindrica, Gray; rare.

Hepatica acutiloba, DC.; rare; sparingly on back slope of Stissing Mt.

Ranunculus multifidus, Pursh.—not common; in streams on Stissing Mt.

Coptis trifolia, Salisb.; common.

Caulophyllum thalictroides, Michx.; rather common; abundant along base of Mt. Ararat, with Solea concolor, Ging.

Podophyllum peltatum, L., not rare.

Sarracenia purpurea, L., quite common.

Corydalis aurea, Willd., frequent on Stissing Mt.

Fumaria officinalis, L., escaped from gardens.

Dentaria maxima, Nutt., not common; rich soil, in deep ravines of mountain.—D. diphylla, L., and D. laciniata, Muhl., both very common.

Arabis hirsuta, Scop., A. lævigata, DC., and A. Canadensis, L., are all common on Stissing Mt. and frequent on wooded hills.

Lepidium campestre, L., rare.

Solea concolor, Ging., abundant on slope of Mt. Ararat.

Viola Selkirkii, Goldie, near or on Mt. Ararat, M. E. V. (?)

Hypericum ellipticum, Hook., in Wappinger's Marsh.

Silene noctiflora, L., frequent along fences and roadsides. S. inflata, Smith, becoming common along our two railroad lines.

Stellaria longifolia, Muhl., rare, Silvernail marsh. S. borealis, Bigelow, frequent; more common than S. longifolia.

Claytonia Virginica, L., not common; grows along Shekomeko creek and Roelif Jansen's Kill.

Malva moschata, L., not rare in our fields—an escape.

Impatiens pallida, Nutt., very common along Shekomeko creek and Roelif Jansen's Kill.

Xanthoxylum Americanum, Mill, very common.

Rhus copallina, L., common on Stissing Mt.

Rhamnus alnifolius, L'Her, deep swamps on Stissing Mt. L. catharticus, L., along Hemlock banks of Mud Pond.

Acer Pennsylvanicum, L., common on Stissing Mt. A. spicatum, Lam., common in ravines of Stissing Mt. and Mt. Ararat.

Tephrosia Virginiana, Pers., frequent on south part of Stissing Mt.

Melilotus officinalis, Willd., not uncommon along roadsides. M. alba, Lam., becoming common.

Lespedeza procumbens, Michx., common on our hills and mountains.

Coronilla varia, DC., well naturalized in one station, in fields.

Prunus pumila, L., frequent on Stissing Mt.—abundant on summit. P. Cerasus, L., thoroughly naturalized about here, in woods and on Stissing Mt.

Geum strictum, Ait , very common everywhere about here. G. rivale, L., frequent in our deep swamps.

Rubus strigosus, Michx., very common.

Rosa micrantha, Smith, and R. rubiginosa, L., both frequent. R. blanda, Ait , rather rare.

Potentilla tridentata, Ait., abundant on summit of Stissing Mt. P. arguta, Pursh., common on Stissing Mt. P. fruticosa, L., very common in all our marshes; over hundreds of acres densely covered with it.

Waldsteinia fragarioides, Tratt., abundant in certain ravines on Stissing Mt.

Cratœgus tomentosa, L., common.

Ribes Cynosbati, L., common on Stissing Mt. and in adjoining woods. R rubrum, L., common along creeks and cold woods. R. hirtellum, Michx., common in our cold swamps. R. floridum, L., is also common.

Mitella diphylla, L., common in all our woods.

Tiarella cordifolia, L., rare; stations, cold mountain woods and along springy banks of a small stream.

Circæa alpina, L., abundant in one or two deep woods.

Epilobium molle, Torr., frequent in our boggy marshes. E. palustre, L., rare.

Ludiwigia alternifolia and Nesæa verticillata, H. B. K., are both rare with us.

Terms—One Dollar per annum beginning with the January number. For the Botanical Directory alone, 30 cents. Back volumes on hand.

The Club meets regularly the last Tuesday of the month in the Herbarium, Columbia College, at 7½ P. M.

§ 128. Additions to the Bryology of the United States.

NO. IV.

Description of four new species of Musci from the Gulf States, by DR. KARL MUELLER, Halle.

1. **Barbula** (senophyllum) **Jooriana**, C. Müll., *n. sp.*—Dioica; laxe cespitulosa amœne viridissima facillime emolliens igitur mollissime tenera, simplex vel ramulo infra pedicellum innovante brevissimo divisa; folia caulina parum crispula madore remotiuscula patula axin rufulum vix obtegentia. e basi semivaginante erectiore oblongata angusta pellucidiore lineari-lanceolata plus minus obtusata vel acutiora sed mucrone brevissimo terminata, nervo flavido crassiusculo canaliculato dorso scabriusculo excurrente basi fibrosa-decurrente exarata, margine infero solum paulisper revoluta, concava alis superioribus planiusculis integerrimis, cellulis parvis basi rectangularibus majoribus breviusculis angustis superne minute hexagonis valde chlorophyllosis mollissimis distinctis vix papillosis; perich. interiora perpauca erectiora e basi longius vaginata oblonga accuminata haud mucronata, theca in pedunculo brevi rubente strictiusculo erecta minuta oblonga, calyptra ubique fere tenuiter scabra, spiraliter cellulosa; peristomii dentes tenerrime capillares usque fere ad basin fissi, elongati rufuli asperuli.

Barbulæ unguiculatæ aliquantulum similis.

Patria. *Ludovicia.* In terra argillacea prope *Baton Rouge.*

Dr. *Joor* primum legit. Ex herb. C. Mohr.

2. **Dicranum** (*Campylopus*) **subleucogaster**, *n. sp.*—Dioicum; laxe cespitulosum pollicare sordide lutescens strictiusculum apice solum ob ramulos brevissimos dense congestos comam crispatulam crassiorem setosam parvam sistens; folia caulina inferiora minute erecto-conferta sed axin parum obtegentia, e basi longe flavide-fibrosa plus minus latiuscula ovata dein acuminata, nervo applanato latissimo subulam canaliculatam latiusculam superne attenuatam et apice serrulatam strictiusculam constituente cellulis basilaribus laxioribus amplioribus pellucidis regulariter hexagonis paucis deinque quadratis minoribus firmis incrassatis lutescentibus alaribus multis laxissimis fuscidulis senectute emarcidis pellucidis in ventrem lævem congestis; perich. multo majora latiore basi vaginata vel convoluta laxissime amplissime reticulata subula-elongata flexuosa grossius serrulata coronata.—*D. leucogaster* differt caule magis flexuoso crassiore multo longius setoso, cellulis alaribus omnino albidis laxioribus, cæteris minoribus.

Patria. *Alabama*, Mobile, ad terram humidam argillosa-arenaceam, rarum. C. Mohr, leg. Mart., 1861:

3. **Hypnum** (*Brachythecium*) **biventrosum**, C. Müll., *n. sp.*; Dioicum; laxe cespitulosum viridissimum *pusillum, ramis* simplicibus *tenuibus brevissimis* curvulis madore turgidiusculis strictis; *folia caulina* dense conferta humore erecto-patula, *parva e basi vix decurrente* latiuscula ovata longiuscule acuminata *perfecte symmetrica*, basi utrinque *nervi loco plicæ ventrem plus minus profundum sistentia*, nunquam plicas longitudinales sulcatas constituentia, *margine*

basilari solum late convexo, supremo interdum angustissimo *nusquam valde revoluto sed pro more erecto, ubique constanter distincte denticulato, nervo valde regulari viridissimo stricto* canaliculato supra medium evanido *nunquam flexuoso vel furcato, cellulis densis* linearibus brevibus, *alaribus paucis minutis massa chlorophyllosa repletis mollibus*; *perich. parva*, e basi vaginata laxe elongate reticulata, *plus minus subito in acumen* longiusculum capillare reflexum *protracta* superne hic illic dente grosso vel minori ornata enervia *eplicata*, externa minora e basi latiuscula ovata semivaginante subito reflexe acuminata denticulata, *nusquam margine revoluta.* Theca *in pedunculo brevi* lævi rubente spiraliter torta, erecta *minuta cylindrico-oblonga haud curvata*, operculo conico brevissimo obliquiusculo apiculato *non protuberante, annulo simplici obsoleto;* perist. *d. ext. breves angusti* rubiginosi linea longitudinali obsolete notati parum trabeculati, *interni* in membrana perbrevi lutea lævi positi, in crura duo capillaria fissi, ciliis *singulis rudimentariis.*—Ob inflorescentiam pedunculum glabrum et habitum *Hypno læto*, cujus formam veluti diminutam refert, simillimum, sed criteriis litteris cursivis accuratius designatis prorsus diversum, exiguitate et statura *Hypnum velutinum* in memoriam redigens.

Patria. Ludovicia. In sylvis umbrosis prope Baton Rouge, Dr. Joor legit. Vere, 1873. Ex. herb. C. Mohr.

4. **Neckera** (*Orthostichella*) **Ludoviciana**, C. Müll., *n. sp.*—Perpusilla, habitu et statura *Pilotricho cymbifolio* Sulliv. Floridano simillima, sed diversa: foliis indistincte spiraliter polystichis multo angustioribus minoribus longius et acutius acuminatis, indistincte denticulatis, nervo viridi, cellulis minoribus indistinctioribus mollioribus, alaribusque paucioribus minutissimis aureis ad alam infimam positis.

Patria. Ludovicia. Baton Rouge, ad truncos muscosos arborum Dr. Joor leg., 1873, Ex. herb. C. Mohr.

NO. V.

Bryum Mohrii, Lesquereux, *n. sp.*—Hermaphroditum? cæspitosum, *sordide lutescens, caulis fertilis brevissimus simplex vel innovante parce ramosus;* sterilis *simplex subpollicaris erectus* julaceus sed filiformis. *Folia appressa laxe subquadratim imbricata caulina et* perichætialia *e basi horizontali erecta lanceolata nervo valido percurrente acuta vel obtusiuscula; folia innovationum oblonga versus basim angustiora subdecurrentia, nervo valido viridi obtuse appiculata, carinato-concava, margine plana integra, basi cellulis parallelogrammis, superne polygono angustatis areolata.* Theca in pedicello elongato *pollicari et ultro vix flexuoso rubello horizontalis vel erecta angusta oblongo-cylindrica sub ore constricta,* operculo *conico obtuso umbonato sanguineo; annulo lato composito* peristomii interni dentibus fissis ciliis singulis binisve gracillimis appendiculatis interpositis.

To this description the author adds the following remarks:

"I could not distinctly see if this species is hermaphrodite. It is more probably diœcious, as the fragments found at the axils of the upper perich. leaves appear to be abortive archegonia rather than anthers. The species is allied to what Müller describes as *Bryum obconicum*, Hsch., and may be a variety of it. The specimens are, however, too few and incomplete for positive assertion."

Patria *Ludovicia.* In terra argillacea, lutosa ad ripas fluminis Mississippi prope Donaldsonville, C. Mohr leg. Mense Decembri, 1856.

The following tropical species, heretofore not observed in the United States, have been found by me in the Gulf region.

Barbula Crugeri, Sonders. Müll., Syn., vol. 1, p. 618.

Ludovicia. Ad ripas fluminis Mississippi in muris vetustis St. James Parish, capsulis deorperculatis. Mense, Decembri, 1870.

Trichostomum macrostegium, Sull. Musci Cubenses Wrightiani, 1861. *Ludovicia.* Donaldsonville, Bryo Mohrii associatum. Decembri, 1856.

Mnium (*Rhizogonium*) **spiniforme**, C. Müll., Syn., vol. 1, p. 175. *Alabama.* In sylvis opacis locis udis ad truncos prostratos valde putridos prope Cottage Hill, Mobile Co., Decembri, 1873, copiose et pulcherrime fructiferum.

Rhacopilum tomentosum. Brid.

Ludovicia. In sylvis opacis in truncis vetustis arborum frequens prope Donaldsonville; thecis maturis. Decembri, 1856.

C. Mohr, Mobile, Ala.

§ 129. Companion Plants.—L. H. H.'s observations in § 119, October Number of the Bulletin, will not hold good here; for Cephalanthus and Saururus, while often growing together, are more frequently found in different localities. As they affect similar situations, they would naturally grow in company at times; but the former is much the more common plant with us.

My experience is also diverse from that of Mr. Bower. I do not remember to have ever seen Schizæa pusilla and Lycopodium Carolinianum in company, though I have seen them in separate localities many times. The former is confined to the Pine-Barren region of New Jersey, while the latter extends along the Atlantic coast to Florida, and is even found at the Cape of Good Hope!—where, too, a species of Schizæa (*S. pectinata*, Thunb.) is also found. It would be curious if these keep company also; but different localities are given on the labels with my specimens.

Wilmington, Del. Wm. M. Canby.

[Lycopodium Carolinianum has often betrayed to us the lurking Schizæa.—Eds.]

§ 130. Insects destroyed by vegetables.—The note (§ 116) about grasshoppers, in the October Bulletin, reminds me of the time when I spent years in looking after insects which suffered death either by imprisonment or by attacking plants to deposit eggs, etc. I found it common for the timber boring insects (Urocerata) to become fastened to the trunks of trees by their ovipositors. One year I found quite a number of the Sirex Columba, L., the Tremex of our times, thus fastened to Oaks, Elms, Pear trees, etc. I also found that our common Pond-lily (Nymphæa odorata) closed up, every now and then, confining insects of various sorts, and that, when the flower was mature, the straight scape would become spiral and draw flower and insects under water. The Gum Pink Catchfly [Silene antirrhina?] was visited, and the insects imprisoned by it catalogued and reported to Dr. Harris. Afterward I found that insects naturally feeble were oftentimes actually shut in by the growth of the plant; for instance, the Gall-flies (Cynips) or their progeny in the galls they caused, and feeble individuals of the Apple-tree Borer were sometimes unable to eat their way out of the trunk.

Natick, Mass. AUSTIN BACON.

§ 131. **Publications.**—1. *The American Naturalist* for December contains a study of *Imbricative Æstivation* by A. P. Morgan, a good example of a kind of work which we are glad to see getting more attention in this country. The two notes on *Yucca filamentosa* and *Apple flowers* are of a similar nature. The Naturalist always contains some instructive botanical matter, and deserves the support of botanists. It offers subscribers for the coming year the back volumes at a very low rate.—2. *A List of North American Lichens*, by Henry Willey, New Bedford, Mass., January, 1873, price twenty-five cents. This list is arranged according to Tuckerman's "Genera," and is a valuable exchange medium.—3. *The American Garden*, for December, contains with other good things a resumé of the recent investigations respecting insectivorous plants, with a plate comprising representations of seven of them.—4. Dr. Gray in the *Semi-weekly Tribune*, December 9, discusses the vitality of varieties.—5. Mr. Thomas Bland has presented to the Club, *Proceedings of the Scientific Association of Trinidad*, Parts VI. and VII., containing a catalogue of the plants in the Royal Botanical Gardens on that Island (about a thousand species), and other interesting botanical matter.—6. Mr. Bland has also presented the Third Annual Report of the Botanical Survey of Southwest and Northwest Louisiana, made during the year 1871, by Prof. A. Featherman, of the Louisiana State University. A map accompanies it.

§ 132. **Spotted Clover.**—My cousin, Mr. Richard A. Bailey, called my attention the other day to a plant of red clover, *Trifolium pratense*, L., in which the leaflets, instead of the usual pale mark, have deep, brownish, black spots upon them. The plant continues to produce these, and has been removed to a conservatory by its discoverer. W. W. BAILEY.

§ 133. **New Stations.**—Rev. H. Wibbe reports finding *Sedum reflexum*, L., last Spring, near Sandlake, N. Y.—Dr. Howe reports *Centaurea nigra*, L., well established in Yonkers, found by R. Kersting.—Mrs. Cora H. Clark, of Jamaica Plain, Mass., reports having found *Paronychia argyrocoma*, Nutt., on the top of White Cap, a small mountain near Andover, Me.

§ 134. **Constitution and By-Laws.**—Copies may be procured by sending twenty-five cents to Mr. I. H. Hall, 36 Pine Street, N. Y.

Terms—*One Dollar per annum beginning with the January number. 12 cents for postage. For the Botanical Directory 30 cents. Supplement to Directory, 10 cents. Address,* WM. H. LEGGETT, 224, *E. Tenth Street, New York. Money Orders on Station D., P. O. N. Y. Back volumes on hand, at one dollar each. All subscriptions or orders filled only on receipt of the money.*

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